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PULMONARY TUBERCULOSIS

RECENT TYPES OF OPERATION

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Tuberculosis is a disease that begins locally and is followed by general dissemination. In this respect it resembles many other infectious diseases as, for example, syphilis, and, like syphilis, it destroys tissue, leaving scars or fibrosis when the infection has been overcome. The local destruction by either tuberculosis or syphilis may produce mechanical conditions that are permanent even though the disease itself is no longer active. One example is stricture of a hollow viscus. These residual disturbances may require operations for relief or even to save life.

Since the discovery of reliable methods of killing the spirochete, the need for operations in syphilitic disease is seldom felt. On the contrary, deformities left by tuberculosis of the lungs are still frequently encountered and form the principal group that calls for operative therapy. The cure of tuberculous cavities with their dangers of locally spreading the infection, of septic absorption or of mixed bacterial contamination and of further destruction of pulmonary tissue is the chief object of operative procedure.

I feel that the day must come when a direct biologic attack on the bacillus of tuberculosis will result in the control and, perhaps, in the final disappearance of the disease, but at present one can hope only for an arrest of progress with cicatrization with or without calcification or ossification, which in ordinary circumstances prevents the continued advance of the malady.

Dr. William Charles White [1] recently delivered an absorbingly interesting lecture at the New York Academy of Medicine. It is an index of what is going on in the investigation of the biologic aspect of the disease. Every physician should read this paper. In the very first paragraph the modern concept of tuberculosis is made so clear that it raises the fire of prophecy in the reader's mind.[2]

Methods employed in the treatment of this disease may be divided into three main groups:

A. Medical treatment, so called, which might better be described as the nonoperative treatment by hygiene.

B. Operative treatment.

Both of these have for their object the resulting "cure" by rest and by scar formation of the least harmful character.

The third method, which is now under intensive investigation, is:

C. Biologic treatment.

Since this paper will deal solely with operations, most of them comparatively new, I will not discuss the medical treatment, including hygiene, voluntary rest, and the like, nor will I touch on the biologic therapy of the future.

I will also not report on the work of predecessors from which the therapy of today has arisen. So quotations from Hippocrates will not be given nor even from Carson [3] (all credit to him and his 1822 prophetic suggestions).

Surgery in this paper is intended to signify treatment by mechanical means with or without a cutting operation.

I assume that the reader has a good working idea of what surgery is supposed to accomplish in pulmonary tuberculosis, so I will merely enumerate its four main divisions, which may be practiced singly or in combination:

1. Extrathoracic procedures.
2. Operations on the thoracic wall.
3. Transpleural operations not on the lung.
4. Attacks on the lung itself.

EXTRATHORACIC PROCEDURES

Of the extrathoracic procedures, the most common is that of paralyzing the diaphragm on either one side or both sides by interrupting its nerve supply.

There has been some question concerning the inhibition of the act of expectoration because of the phrenic paralysis. I have not found this to be the case but rather the opposite, since the paralyzed diaphragm in coughing is pushed violently upward by the compressed abdominal viscera. Burrell [4] takes the opposite view and states that "phrenic avulsion and thoracoplasty are contraindicated" in tuberculous abscesses with much expectoration. It is almost needless to say that Burrell's conclusions will not be upheld by most observers.

Paralysis of the diaphragm, by attacking the phrenic nerve, may be brought about by (1) contusion, (2) injection,[5] (3) division, (4) resection and (5) avulsion.

Read before the First District Branch of the Medical Society of the State of New York, Grasslands, Oct. 11, 1933.

1. White, W. C.: Bull. New York Acad. Med. **9**: 433 (July) 1933.

2. "The tuberculous process . . . involves the living together of two independent organisms, the tubercle bacillus and the monocyte amebic cell."

3. Carson, James: Essays, Physiological and Practical, Liverpool, F. B. Wright, 1822.

4. Burrell, L., S. T.: Lancet **1**: 356 (Feb. 18) 1933.

5. A. Rodet (Paris med. **30**: 100 [July 29] 1933; abstr. J. A. M. A. **101**: 1115 [Sept. 30] 1933) describes an injection made by inserting a needle "5 cc. below the base of the xiphoid process and 5 mm. to the side of the median line, and directing it obliquely upward so that it reaches the insertions of the diaphragm behind the cartilage of the seventh and eighth ribs." There is characteristic neck and shoulder pain after the injection, which indicates that a phrenic nerve has been reached. This method seems unnecessarily complicated and perhaps even dangerous.

If the temporary effects of the contusion of the phrenic nerve by crushing with forceps wears off too quickly, Douglass[6] states that a second contusion may be performed with little difficulty through the scar of the former incision. He has also affirmed[7] that phrenic neurectomy can be regarded as successful only "when the x-ray film no longer reveals a cavity and when the sputum has been negative on concentration for at least three successive months." This definition of the success of phrenicectomy seems rather rigid when one considers that tubercle bacilli in the sputum may come from a lesion, perhaps a very small one, in the opposite lung.

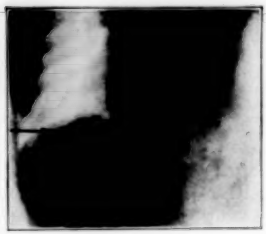

Fig. 1 (Matthew S.).—Transverse position of stomach with kinking of pylorus as a result of right phrenic neurectomy.

In general, the sole method by which the permanent arrest of the disease can be demonstrated is by roentgenograms. I agree with Fales[8] that if after six months of roentgenologic observation there is no visible activity or change, the disease may be regarded as stationary or arrested.

In considering these valuable procedures on the phrenic nerve, much has been said regarding their harmlessness and perhaps too little concerning untoward effects that are occasionally though rarely observed. Truesdale[9] of Fall River referred to the effects of gastric dysfunction by dislocation of the stomach. This had usually been noted after left-sided operations, but recently disturbances on the right side have also been observed.[10] In one of my own cases in which posterior apicolysis had been preceded for some months by phrenic neurectomy, the patient had serious abdominal symptoms with vomiting which necessitated attempts at gastric lavage. Four surgeons and one gastrologist attempted to pass the stomach tube, in every case without success. The tube entered the stomach cavity only once and was instantly expelled. All other attempts were futile, both with the ordinary stomach tube and with the intranasal Levine tube. Later on when the patient was convalescent (without lavage) a roentgen examination of the esophagus and stomach revealed no abnormality of the former but a transverse position of the stomach and, with the rising of the right diaphragm, apparently an angulation of the pyloric region, which probably accounted for the acute dilatation with vomiting, regurgitation and belching (fig. 1).[11]

Phrenic nerve avulsion is the most radical method and on the whole is the most generally applicable. The approach that is oftenest employed is through a transverse incision about an inch or more above the clavicle, where the nerve, when normally situated, can be easily found as it passes downward and inward across the anterior scalene muscle. The exposure which I employ has the advantage that the resulting scar is almost invisible and that identification of the nerve is easy.[12] Dr. H. Ryerson Decker of Pittsburgh has stated that he employs the method as a routine.[13] The incision is made through the skin on the clavicle—not above it—and it extends from the external attachment of the sternocleidomastoid muscle along the clavicle for an inch or even two, for I find it advisable sometimes to carry the inner portion of the approach a little mesial to the edge of the muscle. With careful blunt dissection and resection, the subclavian triangle is exposed. One retractor above and one mesial are necessary, but no retraction is required below because the clavicle is, of course, immovable. The nerve will be seen on the anterior scalene muscle running downward and inward. It should be bluntly raised and a few drops of the anesthetic solution injected into it. I usually follow this injection with a few drops of alcohol. The alcohol is injected in order to infiltrate as much as possible the nerve below the point of section in case too short a piece should be removed by avulsion, so that there will be at least an interruption of a considerable part of the nerve. The nerve is then divided in the upper part of the wound, and the lower part is caught in the usual manner and twisted out. The skin is closed with a few metal clips or fine sutures, and if there has not been rough dissection no drain is required. If, however, there has been hemorrhage or if considerable manipulation has been necessary, I use a temporary drain with a split rubber tube to be removed in forty-eight hours. My dressing is a light pad of gauze over the wound itself and a thick pad in the supraclavicular fossa. This is held in place with a strip of adhesive plaster running from the front of the chest obliquely across the shoulder almost to the spine. If elastic adhesive plaster is at hand, it will assure a springy dressing, comfortable and safe.

Fig. 2.—An anomaly of the phrenic nerve which might endanger the subclavian vein on attempted avulsion.

Fig. 3. — Complex type of phrenic nerve with four main stems. Dangerous relations with cervical arteries and subclavian vein. Difficult or impossible of avulsion.

To those who are interested in the variations of this nerve I would recommend studying the paper by Matson[14] with its beautiful drawings, two of which

6. Douglass, Richmond: Ann. Surg. **97**: 508 (April) 1933.
7. Douglass, Richmond: Personal communication to the author; paper to be published.
8. Fales, L. H.: Am. Rev. Tuberc. **27**: 101 (Jan.) 1933.
9. Truesdale, P. E.: Paper read before the New York Medico-Surgical Society in 1932.
10. Lichtenstein, H.: Beitr. z. Klin. d. Tuberk. **80**: 509 (Aug. 22) 1932; abstr. J. A. M. A. **99**: 1815 (Nov. 19) 1932.
11. The administration of an anesthetic for the purpose of inserting a duodenal tube seems radical but would be preferable to jejunostomy in cases of tuberculosis.
12. Lilienthal, Howard: Northwest Med. **25**: 457 (Sept.) 1926.
13. Decker, H. R.: American Society for Thoracic Surgery, 1933.
14. Matson, R. W.: Exairesis of Phrenic Nerve in Treatment of Pulmonary Tuberculosis, Am. Rev. Tuberc. **22**: 1 (July) 1930.

are here reproduced by permission of Dr. Matson (figs. 2 and 3).

In addition to the anomalies that have been described in the literature, there is one that I have twice encountered; namely, the situation of the nerve far beneath the fascia covering the muscle and between the deeper fibers of the scalenus itself.

The size of the phrenic nerve varies much. I have seen it as small as a thick horsehair and in one instance so large that had I not been able to identify it by the patient's subjective sensations I might have thought I was dealing with another nerve, in spite of its characteristic location.

Fig. 4 (Mrs. Bessie S.).—Before operation: cavitation of right upper chest.

This is not the place to discuss the details of therapeutic effects of the operation; it would take too much time and space. I may state, however, that the low approach to the nerve which I have described makes it less likely that accessory nerve connections will be ignored even though these branches are not seen.

By examining Dr. Matson's pictures it is quite evident that no matter what operation is done there are opportunities for failure or accident, the most serious one being injury to the subclavian vein. The low exposure that I advise has made it possible to see this vessel and form an idea of what is happening to it during the avulsion of the nerve.

I have three times injured the thoracic duct where it enters the subclavian or internal jugular vein, but in none of these cases was there the slightest trouble because of leakage. A small packing firmly compressed by the subsequent dressing was removed in two days with no further leakage. It should be mentioned here that in the cases in which violation of the thoracic duct has been followed by leakage and starvation there has been malignant or inflammatory disease, with dense infiltration of the surrounding tissues, preventing the collapse of the injured duct.

Recently an attempt has been made to produce a depression of the first and other ribs by section of the scalene muscles. I mention this merely because it is a modern operation and comes under the title of this paper. It does not appear to me to be of any real value when compared with the other methods at our disposal, especially the later forms of apicolysis. Brown and Atkinson [15] in a recent estimate of the value of this procedure are of the opinion which I have just expressed and the conclusion they have reached is that "although scaleniotomy is relatively simple and feasible, the clinical results obtained thereby do not warrant its performance."

After all, it must be remembered that when the first rib has been resected posteriorly, even though only a small part of the bone has been taken away, there is tremendous dropping and rotation of the remainder of the rib, so that it becomes almost parallel with the long axis of the body (figs. 4 and 5).

15. Brown, A. L., and Atkinson, Kathleen: Am. Rev. Tuberc. **28**: 176 (Aug.) 1933.

Another extrathoracic method for lessening the capacity of the pleural space is the production of pneumoperitoneum by which both diaphragms are pushed upward. This is particularly applicable in bilateral disease.[16]

It has been noted that in tuberculous women when the terminal months of pregnancy have filled the abdomen and forced the diaphragm upward there is improvement in the pulmonary condition and that after the confinement the return of the phrenic domes to their normal position has been followed by manifestations of recrudescent tuberculosis.

I have not made use of pneumoperitoneum for this purpose although I have frequently employed it in the roentgen diagnosis of diaphragmatic hernia. I am therefore unable to speak from personal observation.

I have found it prudent not to paralyze the diaphragm before the induction of pneumothorax and have been able to demonstrate clearly by roentgenograms that the paralyzed diaphragm is pushed downward by a moderately tense pneumothorax, until it reaches the normal level.[17]

Alexander [18] has devised a method for lessening the excursion of the ribs in respiration by dividing (or otherwise blocking) the intercostal nerves. He does not necessarily reserve this procedure for patients who are so feeble that they cannot withstand thoracoplasty, although he has performed it in cases of this kind. The suggestion is interesting but it does not appeal to me, since it is intended to produce rest alone, with only a minimal lessening of the capacity of the pleura. It probably has its application but the cases must be rare. Then, too, there follows a disagreeable numbing of the

Fig. 5 (same case as in figure 4).—After thoracoplasty, illustrating good apical compression, although the first rib has been merely divided, not resected. Observe its almost vertical position.

cutaneous sensations in the distribution of the divided nerves which is not encountered in thoracoplasty, for no nerves are here blocked or divided. Alexander makes no mention of hemiparalysis of the abdominal muscles, which are supplied by the six lower intercostal

16. Vajda, Ludwig: Pneumoperitoneum in Bilateral Pulmonary Tuberculosis, Ztschr. f. Tuberk. **67**: 171, 1933.
17. Lilienthal, Howard: Am. J. Surg. **14**: 356 (Oct.) 1931.
18. Alexander, John: Multiple Intercostal Neurectomy for Pulmonary Tuberculosis, Am. Rev. Tuberc. **20**: 637 (Nov.) 1929.

nerves. Were these nerves merely cut, the muscular function might return; but with resection or even avulsion this would seem impossible. It is difficult for me to conceive of a patient so ill that when an operation of any kind is considered he could not endure a care-

Fig. 6.—Maurer's incision, beginning below the spine of the scapula. Application of Elastikon to compress lower resected ribs.

fully graded thoracoplasty in local anesthesia. After all, there must be a well functioning contralateral lung to secure success. Here again it is hardly fair for me to express an opinion, since I have never performed the operation. It is mentioned merely for the sake of completeness and because of the important experimental quality of the work.

OPERATIONS ON THE BONY THORACIC WALL

The standard methods of Estlander, Brauer, Sauerbruch and others will be discussed here only in their recent modifications. First, as to the skin incision in paravertebral thoracoplasty. One of the disadvantages, especially in the case of a female patient, has been the extension of the scar high up on the shoulder. Recently Maurer [19] has changed this so that the upper limit of the scar is below the spine of the scapula. By proper retraction upward it is perfectly feasible to resect the upper ribs, including the first. This leaves a space of unmarked skin, permitting the patient to wear a gown with a V shaped neck (fig. 6).

Probably the most frequent cause of early postoperative death, though the accident may not always have been recognized, has been the impairment of respiratory and cardiac function in the contralateral lung by bandages that encircle the chest. No bandage or binder, no matter how loose, should be permitted to envelop both sides of the chest.[20] The surgeon himself should apply the dressing immediately after the operation by holding a narrow gauze covering in place with adhesive plaster, which should not pass farther on the well side than the spine and in front to the distal edge of the sternum. The lower half of the thoracoplasty may, however, be held firmly by adhesive plaster, passing from the midthoracic spine obliquely downward and forward across the abdomen to the opposite bony pelvic region (fig. 6). Compression of the diseased side can thus be secured without the slightest impediment of the motion of the opposite hemithorax. For this purpose I use a wide strip of the heavy adhesive strongly elastic material known by the trade name of Elastikon. To the ends of this material pieces of ordinary adhesive plaster of equal width should be stitched to prevent the edges from curling up. A support of this kind may be left in place for many days and the dressings can be changed by lifting the plaster away from the gauze beneath.[21]

The various splints and braces that have been recommended for this purpose are to my mind too complicated and uncomfortable.

In posterior thoracoplasty, a few points worth remembering are the following:

Occasionally the compression or collapse may not appear to have been successful even after a few months, the ribs uniting by bony bridges from end to end instead of dropping downward as they should. Hedblom, Alexander and others have advised that in these cases other resections be made through a longitudinal anterior axillary wound (fig. 7). I have made use of this method a number of times with success and a paper on the subject was almost ready for publication when Alexander's [22] article appeared. The method is a good one but the second incision is not necessary as a routine. Years ago I operated in several cases by incisions through the original posterior scar, an almost bloodless procedure. The anterior parts of the ribs

Fig. 7.—Axillary incision for removing more rib anteriorly after paravertebral thoracoplasty.

were thus easily found by dissection and anterior retraction. It has not been difficult for me to take away as much bone as I desire, even to the costal cartilages, without the complication of a second incision,

19. Maurer, A.: Le thoracoplastie dans le traitment de la tuberculose pulmonaire, J. de chir. **34**: 857 (Dec.) 1930.
20. This matter will again be referred to in the discussion of apicolysis.
21. The part of the plaster next to the gauze may be prevented from sticking by powdering before it is applied.
22. Alexander, John: Special Considerations Relating to Surgical Closure of Large Upper Lobe Tuberculous Cavities, J. Thoracic Surg. **2**: 1 (Oct.) 1932.

and with complete mechanical success (figs. 8 and 9). Since I have not seen this secondary procedure elsewhere described, it is probably original.

Sometimes there is striking improvement and even disappearance of bacilli after an operative result not anatomically perfect. This is doubtless brought about by a stiffening of the thoracic walls with consequent rest. Further thoracoplasty may be considered if symptoms of disease recur.

Another procedure that I find to be a decided improvement on the older methods is the combination of posterior apicolysis with first stage thoracoplasty,

Fig. 8.—Insufficient collapse because of too rapid bone formation from periosteum between rib ends.

Fig. 9.—Same case: Three years after further resection of anterior portions of ribs through the scar of the thoracoplasty. Unfortunately, the patient now has disease in her other lung. (The sides of this illustration have been reversed.)

the anterior and axillary routes being avoided. I now regularly perform posterior apicolysis at the first session in thoracoplasty. I make the original incision downward and then around the scapula, which is finally mobilized (figs. 10 and 11). The operator can carefully strip away the apical parietal pleura, push the lung downward and effect the compression of any ordinary cavity in this region. Those with calcified walls will be referred to later.

Rather than use a wax, paraffin or other rigid filling for this extrapleural cavity, I much prefer a method, which I have several times described, namely, packing with crumpled rubber dam. (Not rubber tissue, erroneously ascribed to me by Casper and Bruns.[23]) One end of the rubber dam packing is led out at the lower angle of the wound, the rhomboid muscles are firmly sutured and the skin is closed over all except the drainage opening below. In from three to five days or longer, if the packing is well tolerated, the dam may be removed and replaced by a soft rubber tube of good size (about 30 French). There will be discharge for some time, but gradually healing of the extrapleural cavity by granulation will occur and the walls will be drawn in permanently obliterating the cavity. There is no tendency for the lung to rise to its original place in the thorax. Should thoracoplasty of the lower part of the chest be necessary, this can be done at another time through an incision connecting with the mesial part of the first one (fig. 10).

In any operation for collapse or even compression of the whole or a part of a lung, signs of cardiac distress may appear because of dislocation of the mediastinum with its contained vital parts. Cyanosis, dyspnea or other alarming symptoms should be the signal for removal of the packings or of the pressure from without. Relief will almost certainly follow.

The rubber dam packing will increase the volume of the extrapleural cavity in four days, from double to treble the size that was present at the end of the operation (figs. 12 and 13).

TRANSPLEURAL OPERATIONS NOT ON THE LUNG

The commonest transpleural operation not on the lung is of course the induction of artificial pneumothorax. This procedure is so well known that it is unnecessary to go into details. The value of this therapy has been greatly enhanced by the brilliant invention of the operating thoracoscope by Jacobæus, with its comparatively safe division of adhesions which would otherwise nullify the effects of the pneumothorax. The section of these adhesions by the electric cautery with its obscuring smoke and danger of infection or hemorrhage when pulmonary tissue happens to form a part of the adhesion has been largely supplanted by operating with a coagulation current, which is smokeless and which will minify the hazard. Several new instruments of this type have been devised, but the one that has impressed me most is that of Dr. Louis R. Davidson of New York. It requires but a single opening through the chest wall instead of two (one for observation and one for the cautery).

It has been stated that adhesions in the posterior part of the pleural space are difficult to reach, especially those which are wide and flat. I question that it is worth while to try to divide adhesions of this kind, and yet occasions may arise in which it may be justifiable. When this cannot be carried out through a single thoracoscopic opening in the chest I would suggest that, as in Jacobæus's original operation, another opening more advantageously placed can be made for the purpose of dividing the adhesions under the guidance of the eye at the telescope in the original thoracic wall perforation. Eloesser of San Francisco has gone so far as to divide adhesions, using the approach of actual wide thoracotomy and closing the chest after the adhesions have been divided between ligatures. It has always appeared to me that thoracoplastic procedures would perhaps be safer than this method and yet I can understand how even this radical step may eventually prevent permanent loss of function in healthy lung, which might otherwise be sacrificed in destroying the function of the diseased part.

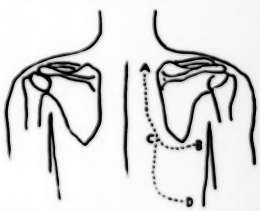

Fig. 10.—*A-B*, incision for posterior apicolysis; *C-D*, incision of continuation for lower thoracoplasty.

The tendency of modern surgery is to conserve the breathing space of a lung when only part of it is hopelessly diseased.

To return to the discussion of uncomplicated artificial pneumothorax, a special danger may be here mentioned. I refer to dislocation of the mediastinum, to which I have already referred.

A means for combating this annoying complication was recently called to my attention by Dr. Herben of Loomis Sanatorium. If deviation appears after the

23. Bruns, E. H., and Casper, Joseph: Mil. Surgeon **68**: 311 (March) 1931.

induction of pneumothorax of a comparatively low tension, it should be regarded as a danger signal and measures should be taken to stiffen the mediastinum before proceeding with any further collapse therapy. Berck [24] has gone so far as to make experiments on the mediastinal space itself to produce rigidity, but this seems to be an operation of too great magnitude and peril. Dr. Herben has shown that the injection into the pleural sac of an aseptic irritating substance, such as gomenol and oil or liquid petrolatum alone, later to be withdrawn, has a tendency to produce pleural thickening and the much to be desired rigidity.

Fig. 11.—After posterior apicolysis.

Two contrasting cases of my own have impressed this strongly on me. The first patient, operated on years ago by thoracoplasty, immediately after the procedure became cyanotic and in danger of death; loosening the adhesive plaster dressings relieved the condition, but immediate perfect collapse was thereby prevented.

The other patient was a young woman on whom thoracoplasty had been contemplated but in whose chest Dr. Herben recognized dangerous mediastinal mobility after only moderately tense pneumothorax. This was overcome by temporary oleothorax with gomenol. When the mediastinum became rigid I succeeded in achieving good thoracoplastic obliteration of the diseased lung, with final disappearance of all symptoms and with absence of bacilli from the sputum.

OPERATION ON THE LUNG ITSELF

I now come to the consideration of the more radical intrapleural measures. These are mainly operations on the lung itself and I shall mention first the direct drainage of cavities. There are two principal reasons why this should be performed: First, it should be performed when the cavity harbors mixed infection which becomes dangerous to life. The mere presence of tuberculosis as a primary factor should not prevent the treatment of such a cavity as if it were a nontuberculous or even a putrid lung abscess. The first case in which I had recourse to this operation occurred a number of years ago. The patient had a large cavity in the upper central part of the right lung, and after the first stage of thoracoplasty there was high fever and great distress because, apparently, the compression of the thoracic wall had impeded emptying by way of a bronchus. Nearly three weeks later I realized that unless direct drainage was accomplished my patient would lose her life. Therefore, with considerable misgiving, I performed pneumonotomy and drained the cavity fearing, as was the general belief, that because of the tuberculosis the resulting fistula would become permanent. There was immediate relief and in due time the thoracoplasty was completed. Contrary to my fears the fistula closed and the cavity has had to be opened twice since then, the last time only a few months ago when the entire roof was removed and the wound treated by packing. So long as the cavity is open the patient is comfortable but if it closes there is cough with distressing asthma. At the present writing the hollow seems to be obliterating naturally and I have great hope that this troublesome case will eventually terminate happily. At any rate the woman is alive and active nearly ten years after the original operation.

Since then I have opened other similar cavities and feel convinced that, when there is a great quantity of sputum and the surgical compression from without cannot be attained, it is far safer in the presence of a healthy contralateral lung to drain freely through the chest wall rather than to subject the individual to the dangers of cough and probably spill-over infection.

In another instance, also years ago, there was an upper cavity with a tuberculous empyema with cough and profuse expectoration. Dr. Amberson suggested that it might be worth while to drain the pulmonary cavity into the pleura. This was done, with immediate improvement; but for other reasons this case has been a difficult one and I fear that the unfortunate patient is doomed to a sanatorium existence.

In contrast with these cases is the following:

L. Z., a man, aged 49, with glycosuria,[25] which was under control with insulin, complained of a large right upper abscess of the lung. He had been treated by endoscopy and otherwise with no success, and the abscess seemed to be rapidly progressing. Immediate drainage through the chest wall seemed urgent and I referred the patient to a hospital where he was out of my control, although I sent a note suggesting the advisability of early operation. He was admitted to the medical service and on repeated bronchoscopic examinations tuberculosis was diagnosed and there was a delay of two weeks, after which spontaneous pneumothorax occurred. Operation was then performed and the cavity drained, but death occurred soon afterward.

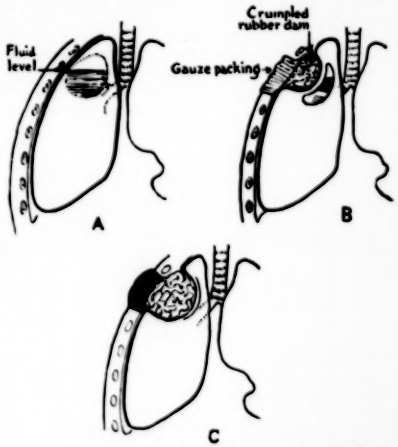

Fig. 12.—Diagram of action of apicolysis (in this case axillary). A cavity with a fluid level is compressed into a slit. *A*, before operation; *B*, immediately after operation; *C*, four days after operation. The cavity is now obliterated and the extrapleural space much larger.

24. Berck, Maurice: J. Thoracic Surg. **2**: 44 (Oct.) 1932.

25. An interesting paper on the coincidence of diabetes and tuberculosis is that by Wessler and Hennell (Am. Rev. Tuberc. **27**: 47 [Jan.] 1933).

While I do not maintain that the fatality would have been avoided by earlier drainage, I do believe that delay in a case of this kind contributes to the danger and that the mere diagnosis of tuberculosis as a complication in abscess of the lung was of no importance in deciding on the character of the treatment to be adopted.

Cavities with calcified or ossified walls but with large secreting surfaces with profuse expectoration, whether bronchiectatic, multiple or single, form a very serious and difficult class. The usual extrapleural operations are inadequate, and drainage through the chest wall may leave permanent disability.

At the 1933 meeting of the American Society for Thoracic Surgery, Dr. Harold Neuhof presented a method for the collapse of those cavities in which it can be demonstrated that there is no free space between the two pleural layers. He incises the layers covering the abscess until he reaches a cleavage plane beneath which there is a collapsible wall. Then with careful manipulation he obliterates the cavity and holds the compression by packings, covering these with mobilized periosteum as well. While I have not attempted this procedure, I believe it may have an important place in thoracic surgery.

Fig. 13.—Posterior apicolysis five days after operation. Observe balloon with sodium iodide solution as a contrast medium for roentgenologic purposes. Tube emerges from lower angle of wound, through which balloon may be filled, emptied and withdrawn.

As a last resort, especially in the bronchiectatic cases, it seems to me that resection of the rigid walled cavity should be done either at one sitting or in divided stages according to the conditions encountered. Indeed, I feel that eventually resection of the lung will become one of the operations of recognized worth in certain cases of localized pulmonary tuberculosis. Thus far, though I have resected many pulmonary lobes for suppurative disease, I have not had the opportunity to apply the principle in cases of phthisis.[26]

ELECTROSURGERY

Another new and important adjunct in operations on the chest wall is electrosurgery. When properly carried out the electric incision of the skin insures aseptic conditions unobtainable by the ordinary instruments. The tissues must be divided with a quick sure stroke, so that cell destruction along the walls of the wound may not be so great that healing will be delayed. There is another distinct advantage in the small number of hemostatic ligatures, the blood flow from vessels of small size being checked by coagulation through hemostatic clamps. I have performed a secondary complete paravertebral thoracoplasty with resection of ten ribs without the application of a single ligature. There was primary union throughout. Those who are interested may care to read a recent article which I contributed on this subject.[27]

Electrosurgery in thoracic disease should be confined to the chest wall, for if it is employed within the pleura and especially near the heart there is danger that the muscle of that organ may be made to contract abnormally, with fatal result.

EMBOLISM AND MASSIVE COLLAPSE

Among the dangers always to be considered in any operations on the chest for tuberculosis, two are outstanding. They are massive collapse of the better lung and cerebral air embolism. Bacterial embolism with metastasis to the brain is, of course, always possible, and there is no way in which this can be prevented. The danger of air embolism can be greatly diminished by keeping the patient's head lower than his chest during any operative procedure on the wall or cavities of the thorax. Massive atelectasis in thoracic surgery can be treated, but the accident cannot at present be prevented.

ANESTHESIA

With the appearance of tribrom-ethanol as a powerful preoperative hypnotic, a valuable agent is available which relieves the patient of mental anxiety and excitement and which, when properly given as an adjunct and not as a true anesthetic, becomes a genuine blessing in many operations on the chest. But there is one important contraindication, namely, the habitual expulsion of a large amount of sputum; for, in spite of the precaution of pharyngeal suction during operation, the long-continued sleep afterward is liable to be accompanied by aspiration into the better lung. Therefore I do not use tribrom-ethanol in any case when there is profuse expectoration.

SUMMARY

1. Tuberculosis as a disease is not amenable to surgical treatment. Anatomic conditions of a pathologic and threatening nature resulting from the disease may be treated by surgical procedures.

2. The chief object is the obliteration of tuberculous cavities and the conservation of healthy lung.

3. Operative procedures are divided into: (1) extrathoracic, (2) operations on the chest wall, (3) transpleural operations not on the lung, and (4) operations on the lung itself.

52 East Eighty-Second Street.

26. In 1913 Tuffier demonstrated to me the case of a young woman whose right apex he had resected by drawing it with its parietal pleura through the anterior chest wall, ligating its base, ablating the extruded part, and dropping the stump back into the chest. When I saw her, the woman had fully recovered.

27. Lilienthal, Howard, Electrosurgery, Ann. Surg. **97**: 801 (June) 1933.

Always a Sign of Syphilis.—From a study of the literature and an examination of numerous cases of so-called nonsyphilitic Argyll Robertson pupils, one can safely say that a real Argyll Robertson pupil is always a sign of syphilis until it is proved otherwise. If one holds that the true Argyll Robertson pupil has certain definite characteristics besides the loss of the light reaction, many of these cases can be excluded because they do not come under the classification of a real Argyll Robertson pupil. In many of these reported cases the pupils were dilated and the convergence reaction was retarded. The reason for publication of these reports was the loss of the light reflex. Most writers on this subject hold that a real Argyll Robertson pupil has certain definite features, besides the absence of the light reflex, and agree with Bumke and Behr that such a pupil is always a sign of syphilis of the central nervous system.—McAndrews, L. F.: Argyll Robertson Pupil, *Arch. Ophth.* **10**:520 (Oct.) 1933.

NICKEL CARBONYL POISONING

REPORT OF A CASE

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Intoxication with nickel carbonyl has been of rare occurrence. A number of cases that occurred in England, where the Mond process for obtaining pure nickel was first used, were reported some years ago.[1] Richter [2] reported a case of poisoning with metallic nickel, with recovery. Gron [3] reviewed the subject of nickel rash and reported a case. Stewart [4] recently has reported a case of dermatitis due to nickel and cobalt.

Armit [5] some years ago studied the toxicity of nickel carbonyl and other nickel compounds on experimental animals and found that the nickel was the toxic element and not the carbon monoxide formed. The amount of carbon monoxide liberated on dissociation from a minimal lethal dose of nickel carbonyl was sufficient to give only a 5 per cent hemoglobin saturation, which is well below the lethal level for carbon monoxide.

Nickel carbonyl is prepared by passing a current of carbon monoxide over finely divided metallic nickel. A gaseous compound is formed with the composition of $Ni(CO)_4$. The gas can be condensed into a mobile liquid, which boils at 43 C. and volatilizes at room temperature.

Characteristic changes found in the cases reported were hemorrhages, especially in the white matter of the brain and in the lungs, fatty degeneration of the walls of blood vessels, and edema of the lungs. In experimental animals hemorrhages were always found in the lungs, in the suprarenal glands in more than 50 per cent of cases and frequently in the brain. At

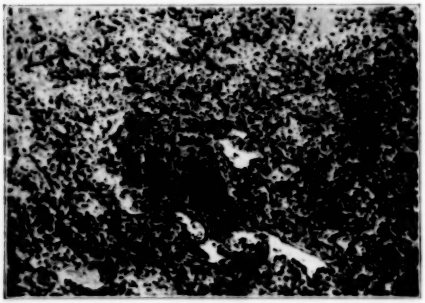

Fig. 1.—Area of lung demonstrating the degenerative and desquamative changes in the alveoli. Also mild infiltration with neutrophils and mononuclear cells. Hematoxylin and eosin stain.

times they were present in all organs. In the presence of moisture and at body temperature the inhaled nickel carbonyl is dissociated, and finely divided particles of nickel are deposited on the respiratory epithelium and are absorbed by the blood stream, causing degenerative changes in the vessel walls. The nickel is gradually removed from the lungs and some of it, at least, is excreted by the kidney, since it has been found in the urine.

The outstanding clinical features were a transient malaise with rapid recovery when brought into fresh air. At times nausea and vomiting occurred early. After from twelve to thirty-six hours cyanosis and dyspnea developed and progressively increased in

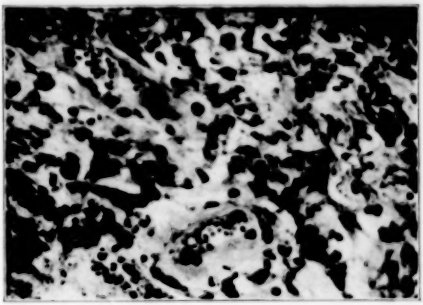

Fig. 2.—Same area of lung as in figure 1 under high power. Disintegration, fusion and proliferation of alveolar epithelium are seen more clearly. Hematoxylin and eosin stain.

severity. A productive cough with blood-stained sputum was frequently observed. Death occurred between the fourth and eleventh days.

REPORT OF CASE

C. B.,[6] a white man, aged 49, complained of dyspnea, orthopnea, nausea, vomiting, insomnia, pain in the right side of the thorax, headache and a metallic taste in the mouth. A chemist by profession, he had been working on a problem of developing a method of "cracking gasoline," in which process nickel carbonyl was used. The present trouble developed five days previous to admission to the hospital. At that time he had poured nickel carbonyl from one container to another and immediately thereafter experienced some dyspnea, from which he recovered after a brief interval. About twenty-four hours later, dyspnea recurred. He became orthopneic and cyanotic, so that at times he would "turn black." By the fourth day he became nauseated; vomiting occurred, which became increasingly severe, so that very little food could be retained. Several of his associates had mild attacks of dyspnea but quickly and completely recovered.

The physical examination revealed marked cyanosis and great respiratory difficulty. The pupils reacted normally. The tongue had a grayish coating. A firm nodular movable mass 4 by 5 cm. was palpated on the right side of the neck below the ear. Expansion of the right side of the thorax was limited, and moist râles could be heard in the middle and lower lobes anteriorly and posteriorly. Tactile and vocal fremitus were increased in these areas. The heart was within normal limits, the pulse was regular and the rate was 100. The liver edge could be felt 4 cm. below the costal border. It was slightly tender. The extremities were normal, except that the reflexes were hyperactive.

Laboratory reports revealed that the blood count was 5,100,000 red cells, hemoglobin (Tallqvist) 100 per cent, and the white cell count 15,800, with 92 per cent polymorphonuclears, of which 21 per cent were band forms. The plasma carbon dioxide combining power was 60.5 volumes per cent. Sputum was blood streaked and tenacious in character. The urine contained a few hyaline casts and a trace of albumin.

From the Department of Pathology, Baylor University College of Medicine.

1. Mott, F. W.: Carbon Monoxide and Nickel Carbonyl Poisoning, Path. Lab. London County Asylums, Claybury, Essex **3**: 246, 1907. Nickel Carbonyl Poisoning, correspondent report, Lancet **1**: 269 (Jan.), 1842 (June) 1903.

2. Richter, George: A Case of Poisoning by Metallic Nickel, J. A. M. A. **49**: 1606 (Nov. 9) 1907.

3. Gron, K.: Nickelplater's Rash, Urol. & Cutan. Rev. **33**: 606 (Sept.) 1929.

4. Stewart, S. G.: Inherent Sensitivity of the Skin to Nickel and Cobalt (Allied Elements in Group VIII, Periodic System), Arch. Int. Med. **51**: 427 (March) 1933.

5. Armit, H. W.: The Toxicology of Nickel Carbonyl, J. Hyg. **7**: 525, 1907; **8**: 565, 1908.

6. Patient of Dr. Lee Hudson.

The patient had great respiratory difficulty, was very restless, became comatose and died on the seventh day after exposure to the nickel carbonyl.

At necropsy there was slight icterus of the sclerae and a faint greenish yellow tinge to the skin of the face, neck and anterior thorax. The lips and oral mucosa were deeply cyanotic. Below the right ear was a nodular mass 3 by 5 cm. that was freely movable. In the skin of the back were numerous dull reddish areas from 1 to 5 mm. in diameter. The pleural cavities contained about 15 cc. of clear fluid; their linings were everywhere smooth and glistening. Numerous dark red areas measuring from less than 1 to 5 mm. in diameter could be seen through the pleurae of both lungs. The left lung was voluminous and heavy, a reddish gray, and mottled with numerous darker red areas scattered throughout. The main bronchus and larger branches contained a frothy reddish fluid, and the lining was bluish red. Large amounts of blood-stained fluid escaped from the sectioned surfaces of the lungs. The greater portion of the left lung was noncrepitant. The right lobe similarly was heavy and dark reddish gray. The cut surfaces were very wet. The greater portion of this lung was also noncrepitant. The pericardial cavity contained about 15 cc. of clear fluid, and the lining was smooth and glistening. The right heart chambers were distended with partially clotted dark venous blood. The endothelial surfaces were smooth throughout. The apex of the left ventricle was slightly sacculated. Several small plaques of yellowish thickening were present in the bases of the aortic and mitral valve cusps. The myocardium was grayish red with small yellowish red and dark red widely scattered areas in it. The heart weighed 480 Gm. The proximal 2 cm. of the right coronary artery showed a diffuse yellow thickening of the intima with slight narrowing of the lumen. The first portion of the aorta had small areas of yellowish thickening of the intima, which increased to a moderate degree along the course of the vessel.

The liver weighed 2,100 Gm.; its capsule was smooth and the edges were slightly rounded. On sectioned surface the lobular markings were accentuated. The peripheral portions

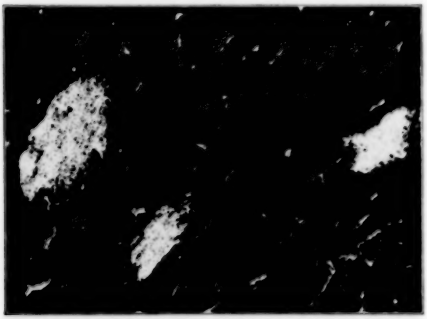

Fig. 3.—Demyelinated areas in the base of the brain. One has a vessel in the center. Weil's myelin sheath stain.

of the lobules were yellowish gray. The kidneys together weighed 380 Gm. The surfaces, after stripping of the capsules, were finely granular. The cortex was of average width. The pyramids were dark red. The spleen was slate blue and its capsule was smooth. Sectioned surface revealed scattered throughout irregular dark red areas. Other viscera showed general passive hyperemia and small widely scattered areas of hemorrhage.

No changes were seen in the dura. The spinal fluid was clear. The meningeal veins were prominent. The dural sinuses contained dark venous blood and had smooth linings. The cerebral ventricles were not noticeably dilated. They contained a few cubic centimeters of faintly blood-tinged fluid. On multiple transverse sections numerous dark red areas were present, most numerous in the white matter, especially of the corpus callosum. They varied in size from those barely visible to a centimeter in greatest dimension. The majority were dark red; a few were brownish red. Some were elongated in outline. These small areas could be seen in the pons and the basal nuclei, and several small indefinite darker grayish areas were present in the medulla.

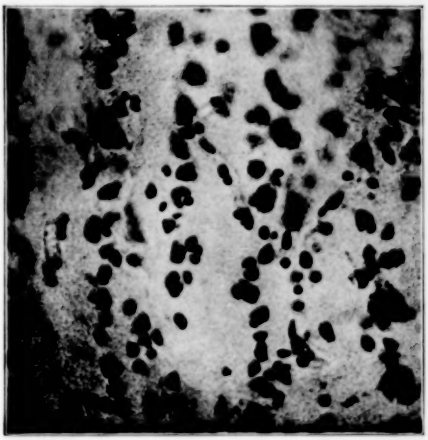

Fig. 4.—Higher magnification to show degenerative changes in ganglion cells and neuronophagia. Cresyl violet stain.

Histologic examination revealed that the changes in the lungs and brain were most marked and most important in this case. Sections taken from the noncrepitant areas in the lungs (fig. 1) revealed a marked edema, hyperemia, multiple hemorrhages and marked changes in the cells lining the alveoli. A slight to moderate infiltration with polymorphonuclear cells was seen. The alveoli were distorted and many to most of the lining cells had become desquamated. Many were markedly swollen and had granular cytoplasm, and others showed fragmentation. Some of the alveoli contained large cytoplasmic masses with multiple nuclei and nuclear fragments (fig. 2). These masses seemed to be fused degenerated lining cells. Some of the alveolar epithelial cells stained deeply, and miotic figures were fairly frequent in some areas. A number of small blood vessels contained fibrin thrombi in their lumens, and their walls were indistinct. There was a large amount of granular vacuolated precipitated albuminous material in the interstitial tissues and in the alveoli. The epithelium of the bronchi and bronchioles also showed degenerative changes. They were swollen and some desquamation had occurred. Many of the mucosal glands were distended with secretion.

Histologic examination of the brain revealed multiple small hemorrhages scattered throughout but most numerous in the white substance. The majority were small and in perivascular areas. Aside from the hemorrhages, multiple small areas of degeneration were scattered throughout, which showed demyelinization with a myelin sheath stain (fig. 3). These at times were about capillaries and arterioles. In some of these areas, moderate numbers of polymorphonuclear and large mononuclear cells could be seen. The hemorrhages varied somewhat in that in some the red blood cells were intact, whereas in others they were partly disintegrated. In a fair number of capillaries and arterioles, hyaline and fibrin thrombi were seen. The walls of some of the arterioles were indistinct and more or less homogeneous and hyaline-like in structure. Ordinary fat stain did not show an increase in fat. With cresyl violet stain, degenerative changes were well demonstrated in many ganglion cells. Some of these were greatly swollen. In others

the Nissl granules had disappeared, especially in the perinuclear areas, and the nucleus in some was eccentric in position. Neuronophagia of some of these cells could be seen (fig. 4).

Thrombi were also found in the myocardial vessels (fig. 5). Other viscera, such as the liver, kidney and spleen, showed passive hyperemia and rather marked parenchymatous and fatty degeneration (liver) but no distinctive changes. The mass in the neck proved to be a mixed tumor of the parotid gland type.

Specimens of tissue from the brain and lung were examined for nickel, dimethylglyoxime being used for the development of a color reaction.[7] This test is of sufficient sensitivity to demonstrate the presence of 0.001 mg. of nickel. The extract from 3 Gm. of lung gave a strong test, bright red. Three grams of brain tissue gave a much weaker but a very definite pink red. The same method was used in testing 4 Gm. of tissue from the brain in a case of meningitis which gave no color change, the solution remaining colorless by contrast. Blood examined post mortem failed to give a test for carbon monoxide.

SUMMARY

The clinical and pathologic features of this case correspond closely with those of the cases previously reported. The histologic changes in the lung are quite

Fig. 5.—Thrombus in a vein in the myocardium. Hematoxylin and eosin stain.

unusual and correspond more nearly with descriptions of observations in the lungs damaged by irritating substances such as phosgene. The changes in the capillaries and arterioles explain the presence of multiple small hemorrhages; also the degenerative changes and areas of anemic necrosis in the brain. That these changes are due to the nickel is indicated by the presence of this metal in relatively large amounts in the tissues analyzed. The lesions were not the result of carbon monoxide present, since at that early stage, seven days, sufficient carbon monoxide should have been present to give a positive test if it were the substance that had caused the widespread lesions. Furthermore, carbon monoxide does not cause the type of lesion in the lung present in this case. Armit [8] demonstrated that the nickel appeared to be transported in the blood in a condition of colloidal solution. The metal is gradually absorbed from the lung in animals poisoned with nickel carbonyl, to such a degree that recovery is possible. The symptoms of extreme dyspnea, nausea and vomiting, restlessness and hyperactivity of reflexes may in part at least have been due to the cerebral lesions.

7. Armit, H. W., and Harden, A.: Quantitative Estimation of Small Quantities of Nickel in Organic Substances, Proc. Roy. Soc. London **77**: 420, 1906.

OSTEITIS TUBERCULOSA MULTIPLEX CYSTICA OF FIBULA AND TIBIA

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AND
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BUFFALO

Following its introduction by Jüngling [1] in 1920, the term "osteitis tuberculosa multiplex cystica" was applied to cystlike degeneration of the bones without joint involvement, characterized by the gradual onset of mild pain and swelling of the affected parts, distinctive roentgenographic observations and a chronic benign course. Not infrequently associated were lupus pernio and Boeck's sarcoid. Histologically, the bone showed epithelioid and giant cell tubercles, with little or no caseation. Tubercle bacilli were rarely demonstrated in examined tissue; guinea-pig inoculation occasionally gave positive results for tuberculosis.

In the past year Van Alstyne and Gowen,[2] reviewing the literature on osteitis tuberculosa multiplex cystica, stated that in all the reported cases the condition was restricted to the small bones of the hands or feet. Theirs was the first authentic case presenting typical lesions in the long bones. They presented a white man, aged 32, who exhibited destructive changes in the left ulna, the left radius, and both humeri. A tuberculous etiology was proved by histologic and bacterioscopic methods, and by guinea-pig inoculation. Because of its rarity, verified histopathology and diagnostic purport, we record an additional case of osteitis tuberculosa multiplex cystica of the long bones.

REPORT OF CASE

E. S., a white American woman, married, aged 56, admitted in the service of Dr. W. W. Plummer, Sept. 2, 1932, complained of pain and swelling of both lower legs of three months' duration. At the age of 30 the patient had had typhoid. Her father and daughter had died of pulmonary tuberculosis; one brother was suffering from the same disease.

During July, 1932, the patient had noted swelling and pain in both lower legs. In a short time the symptoms in the left leg subsided appreciably. The pain in the right leg, however, persisted as a dull ache, which was intensified when the patient was walking or when the leg was bumped. There was no history of trauma or loss of weight. The chest was clear. The inguinal lymph nodes were not enlarged. Slight swelling and tenderness were found over the lower end of the right fibula. The right ankle showed no pain or limitation of motion.

The left leg was not remarkable. The temperature ranged between 98 and 99 F.; the pulse was 80 and the respiration rate was 20. Laboratory examination showed: hemoglobin, 90 per cent; leukocytes, 9,700 per cubic millimeter; urine, normal. The Kahn test was negative. Roentgen examination (Dr. E. C. Koenig) of the lower legs and feet revealed in the right fibula, about one-half inch above the top of the astragulus, decreased density of the bone tissue with a more or less oval excavation, which was cystlike in appearance: there was a thickening of the periosteum on the outer side of this cystlike excavation. Otherwise, the bone tissue of the right tibia and fibula was well within average limits. The right foot, left foot and ankle did not show any evidence of bone disease comparable to that in the right fibula. Examination of the chest indicated increased density of lung markings, especially in the right interscapular region, with small calcareous deposits.

At operation (Dr. F. N. Potts), September 25, a small area of destruction was found in the lower end of the right fibula

From the Pathological Laboratory and Orthopedic Department, Buffalo General Hospital, and University of Buffalo School of Medicine.

1. Jüngling, Otto: Fortschr. a. d. Geb. d. Röntgenstrahlen **27**: 375, 1920.

2. Van Alstyne, G. S., and Gowen, G. H.: J. Bone & Joint Surg. **15**: 193 (Jan.) 1933.

filled with an abundance of red granulation tissue. The soft tissues appeared normal; no joint involvement could be made out.

The surgical specimen was decalcified and examined in paraffin sections by hematoxylin-eosin, Van Gieson, Ziehl-Neelsen, and Gram-Weigert stains. Only a few remnants of fat marrow bordering bone trabeculae were noted. The medullary cavity was replaced by chronic granulation tissue composed of solitary and conglomerate epithelioid and giant cell tubercles. Extensive lymphocytic and plasma cellular infiltration was present. A few tubercles showed necrosis; in places, fibrosis was taking place. The haversian canals were enlarged. Bone trabeculae were atrophic and fragmented. The endosteal surfaces were not smooth and intact but showed everywhere shallow and deep lacunae, apparently eroded by the spread of vascular granulation tissue. Osteoclasts were not seen. The bone itself was also perforated by canals with a central vessel and ragged borders. Here and there small sequestrums lay free with no special reaction about them. No new bone formation was made out. There was no definite cyst wall. Tubercle bacilli could not be demonstrated by bacterial stain. The histologic diagnosis was tuberculous osteomyelitis with inflammatory osteoporosis (caries).

Postoperatively, two roentgen treatments were given to the right leg. On the patient's discharge, October 30, the operative wound was healed, clean and dry.

After the patient had been home for a week, distinct swelling and pain appeared in the left lower leg. On admission to the hospital, November 18, swelling and tenderness were elicited over the left internal malleolus. Except for a healed scar, the right lower leg was not remarkable. Roentgen examination of both feet and ankles showed in the left tibia decided reduction in the density of bone of the internal malleolus in several circumscribed irregular areas. The overlying periosteum was distinctly thickened. The bone tissue of the left foot and ankle was well within average limits. The right fibula showed that the former cystlike cavity had smooth walls and a clean-cut outline. December 9, an incision was made over the internal malleolus of the left tibia. The subcutaneous tissue and periosteum were injected. In the bone of the lower end of the tibia was a small cavity filled with soft, hyperemic, spongy material. The adjacent joint was free. Histologically, the excised soft tissue and bone showed chronic granulations with

Fig. 1.—Cystlike cavity in right fibula before operation.

Fig. 2.—*A*, right fibula after operation; *B*, decreased density in circumscribed areas of left tibia.

epithelioid and giant cell tubercles; also present were several small abscess-like foci made up of polymorphonuclear leukocytes, many of which showed pyknotic nuclei. Giant cell tubercles seemed fewer than in the first specimen. The wound healed within twelve days but broke down three weeks later, draining thin, serous fluid. Three roentgen treatments were given to the left leg. The patient was discharged to the Charity Hospital, Washington, D. C.

COMMENT

From a clinical, roentgenographic and pathologic basis, this case can be justly considered as one of so-called osteitis tuberculosa multiplex cystica of the long bones. Mild pain and swelling, which developed gradually in both legs, were the chief complaints. A definite family history of tuberculosis, and indicative manifestations of old pulmonary tuberculosis in the patient were present. The temperature reached 99 F. in the afternoon. Destructive cystlike changes in the right fibula and left tibia, of outspoken character in the former, were demonstrated by roentgen examination. In neither leg were the ankle joints, the small bones of the feet or the skin involved. Operation

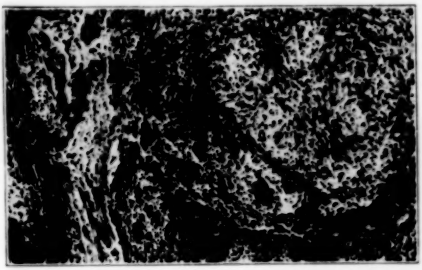

Fig. 3.—Epithelioid and giant cell tubercles; atrophic and fragmented bone.

revealed in both fibula and tibia small "cavities" filled with spongy granulation tissue; in the left leg, the periosteum and the soft tissue were hyperemic. Excised bone showed histologically tuberculous osteomyelitis with epithelioid and giant cell tubercles, but with practically no caseation. Tubercle bacilli were not found by bacterial stains.

Analysis of its anatomic and pathogenic features suggests that the condition here cited might more accurately be designated "osteomyelitis tuberculosa multiplex cystoides." The primary lesion is a tuberculous osteomyelitis. From a focus elsewhere in the body, infecting organisms are carried to the bone marrow by the blood stream. Regressive changes in bone trabeculae occur secondarily to the spread of granulation tissue in the marrow cavity and haversian canals. Before bone destruction and resorption can be demonstrated roentgenographically, considerable time must elapse. For example, our patient complained of definite symptoms in the left leg four months before periodic roentgenograms first showed decreased density of the bone. It may be further reasoned that even a longer time must ensue before regressive bone changes become extensive enough to produce roentgenographically distinct cystlike excavation. So-called osteitis tuberculosa multiplex cystica represents, then, merely a late phase of chronic localized tuberculous osteomyelitis, the diagnosis of which, as of acute nonspecific osteomyelitis, may be suspected before roentgen signs are evident. The term "cystica" appropriately describes the roentgen picture alone. The actual lesion is a circumscribed area of soft granulation tissue and degenerated bone, which only on curettement is converted into a cystlike cavity. A definite capsule cannot be made out. With the absence of marked caseation, no pseudocyst or cavity can be said to form. In fact, Jüngling[3] in his last studies abandoned his original term "cystica" for "cystoides."

3. Jüngling, Otto: Beitr. z. klin. Chir. **143**: 401, 1928.

Opposed to the benign, circumscribed, fungoid type of bone tuberculosis with practically no caseation, here described, must be placed that form with diffuse spread and extensive caseation, sometimes necessitating the surgical removal of an entire long bone.[4] Among the causes of chronic destructive bone lesions of multiple and focal character, such as syphilis, leprosy, osteitis fibrosa cystica, giant cell sarcoma, coccidiosis, echinococcic cysts, nonspecific osteomyelitis, multiple myeloma and metastatic malignancy, so-called osteitis tuberculosa multiplex cystica should be considered.

Because of the benign course and tendency to spontaneous recovery, no definite treatment has been recommended for the disease in question, with the exception of symptomatic measures and immobilization. Jüngling[1] entertained the possibility of surgical excision of cystlike areas but made no application of this method. It is too early to evaluate the results of surgical and roentgen therapy in our case.

PULMONARY MONILIASIS

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J. BEACH HAZARD, M.D.
AND
JOHN A. FOLEY, M.D.
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Three cases of pulmonary moniliasis came under observation in the Fifth Medical Service of the Boston City Hospital during November 1932. One was an infection secondary to pulmonary tuberculosis, the other two were primary infections. Because of the confusing symptomatology, the excellent results obtained with treatment and the sparseness of cases in American literature, it is believed that this report is warranted.

Castellani's[1] early description of bronchomoniliasis was that of a disease closely simulating the clinical picture of pulmonary tuberculosis. Subsequent papers by various authors, however, described several other clinical manifestations of monilia infections of the lungs and bronchi. In addition to the often stressed resemblance to pulmonary tuberculosis,[2] also tracheobronchitis,[3] lobar pneumonia,[4] bronchopneumonia[5] and bronchial asthma[6] have been reported as the result of monilia infections of the respiratory organs. Although Castellani first focused attention on the fact that monilia may be the primary etiologic agent in bronchopulmonary disease, it is also well recognized that this organism may be a secondary invader in the air passages of individuals infected with some primary bacterial agent.[7]

Primary bronchopulmonary moniliasis has been divided into three clinical types,[8] a classification based chiefly on the severity of the infection. The mild type is associated with cough and mucopurulent sputum. Examination of the chest in these cases is often negative, but it is not unusual to find a few scattered râles. The clinical course frequently extends over a period of several months, at the end of which time these patients may recover spontaneously or the case may go on to the severe type. The intermediate or moderate type presents the picture of bronchial catarrh. Fever, cough, paroxysmal dyspnea and blood-streaked sputum are commonly observed. On physical examination, signs consistent with chronic bronchitis are usually found. Cases of this sort may persist in showing signs of activity for years or may go on to the severe type. This third type often has a history which strongly resembles that of pulmonary tuberculosis. Fever, loss of weight, night sweats, fatigue, chest pains, cough, hemoptysis, dyspnea and anemia are usually present. Examination of the chest may reveal signs of pleural thickening or consolidation. These cases, frequently, are fatal.

The acute case may have a sudden onset of symptoms with a rapid progression to a fatal termination. The chronic case is usually insidious in its onset and tends to follow a protracted course with frequent remissions and exacerbations.[9] Cases of this type have been followed over a period of ten years.[10]

Bronchopulmonary moniliasis has been reported from practically all parts of the world.[11] It seems, however, that the maximum incidence is found in warm, moist climates.[9b] It is a disease that occurs chiefly in adult life, more often in males than in females.[12]

The association of monilia infection with chronic debilitating diseases has often been noted.[9b] The organisms have been found frequently as secondary invaders in pulmonary tuberculosis[13] and neoplasms of the lung.[14]

Monilia is usually found as a saprophyte. It is present frequently on putrescent wood, dead leaves and decayed fruit. It is thought by some[15] that, under

4. Drevermann, Paul: Deutsche Ztschr. f. Chir. **220**: 166 (Sept.) 1929.

From the Fifth Medical Service, Boston City Hospital, the Department of Medicine, Boston University Medical School, and the Pathological Laboratory, Boston City Hospital.

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favorable conditions, this organism can become pathogenic for either man or animals. Primary infection in man is generally attributed to direct contact or inhalation.[16] In debilitated individuals, infection may result from the extension of oral or cutaneous lesions.[9b]

The variations in the clinical picture have already been presented. The signs on physical examination are similarly variable, except for the important fact that monilia infections tend to leave the apexes clear.[12] The chest may appear normal, scattered râles may be present, and, frequently, there are the physical signs of pleural thickening or consolidation.[17] Fever may be absent, slight or moderate.[18] There is usually some degree of anorexia and loss of weight.[12] A slight leukocytosis with an increase in eosinophils is common and there may be a relative lymphocytosis.[19] A secondary anemia is a usual feature.[12] Roentgenologic studies may be negative or may reveal the presence of nodules, peribronchial thickening, areas of infiltration, consolidation, fibrosis or pleural thickening.[20] Usually the lesions are located in the bases of the lungs.[11a]

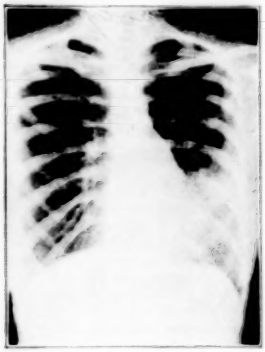

Fig. 1 (case 1).—Density in the left midchest on admission.

For the treatment of pulmonary moniliasis, Castellani [21] suggested the use of potassium iodide in large doses, from 30 to 60 grains (2 to 4 Gm.) daily, in conjunction with creosote and glycerophosphates. Subsequent investigators have varied the treatment in resistant cases by modifying the form of iodide used and have achieved satisfactory results.[22] Thymol by mouth,[23] gentian violet [23] and methylene blue intravenously [2c] have also been used with fair results. Roentgen therapy is reported to be of considerable benefit.[2c] Certain types of cases, however, apparently do not improve with any of these suggested methods of treatment. In such cases, the use of a vaccine has been recommended.[24] Insulin has been used to improve the appetite and to obtain a gain in weight.[11a]

REPORT OF CASES

CASE 1.—A white woman, aged 21, single, admitted to the Boston City Hospital, Nov. 10, 1932, complained of a cough and increasing weakness for the preceding eight months. The cough was frequently productive of a blood streaked greenish or yellowish sputum. Three months after the onset of the cough, she experienced frequent drenching night sweats and chills. She often felt warm and feverish late in the afternoon or early in the evening. The menstrual flow, usually not remarkable, was definitely scanty during the two months previous to her admission to the hospital. For about the same period, she noted a distinct loss of appetite and, in the month previous to her entry, she lost 8 pounds (3.6 Kg.). She fainted twice during the week preceding her admission.

The family and social history were essentially negative. No contact or association with tuberculosis could be established.

She had had the usual childhood diseases. At the age of 13, a physician advised her removal from school because she was "run down" and her lungs had a "few spots." For three years afterward, her condition was followed at the outpatient department of a tuberculosis sanatorium for a question of early tuberculosis. For the next five years, until the onset of her present illness, she felt entirely well.

On admission to the Boston City Hospital, she was fairly well developed and well nourished but pale. Her chest showed diminished expansion on the left with slight dulness to percussion of the middle third posteriorly and inconstant crackling râles. Breath sounds were not remarkable. The right side of the chest was apparently normal. The heart was normal except for an apical systolic murmur. The systolic blood pressure was 90 and the diastolic 50. Examination of the urine was essentially negative. The hemoglobin was 70 per cent (Sahli) and the white blood cells numbered 10,800 per cubic millimeter of blood. A smear showed polymorphonuclear neutrophils, 64 per cent; lymphocytes, 25 per cent, and eosinophils, 2 per cent, with no monocytes. The Kahn test was negative.

Of the twenty-six smears of sputum studied, none were positive for acid-fast bacilli, but thirteen were positive for yeastlike organisms. Cultures of the fungus were obtained from all of three sputum specimens after the mouth was carefully and thoroughly cleaned. Five blood cultures yielded no growth and one yielded a diphtheroid bacillus contamination.

A roentgenogram of the chest, on admission, revealed a mottled density in the left midchest, which was reported as either atypical tuberculosis or a fungous infection. Eight days later, a roentgenogram still showed slight density in the left midchest. December 6, thirty-seven days after admission, the lung fields were within normal limits.

A skin test with monilia antigen was performed, December 2, the fungus isolated from the patient's sputum being used, and 0.1 cc. of a solution containing 500,000 heat-killed organisms per cubic centimeter being injected intracutaneously. An area of erythema, 1 cm. in diameter, appeared in a few minutes, reached its height in an hour and disappeared at the end of three hours.

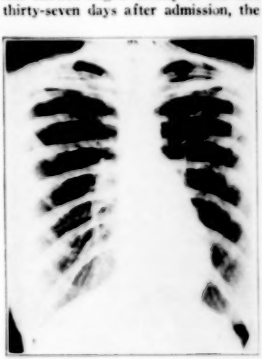

Fig. 2 (case 1).—Lesion in chest entirely cleared, four months after discharge.

The patient's temperature was not remarkable except for an occasional afternoon rise to 99 F., except for December 20, when it rose sharply to 100.4 F. and dropped to normal the next morning. The pulse rate was essentially normal and the respiratory rate varied from 20 to 25 a minute.

The patient was given a high caloric diet, elixir of terpin hydrate and codeine, 15 grains (1 Gm.) of potassium iodide three times a day and 5 grains (0.3 Gm.) of creosote once a day.

At the end of about six weeks, she showed considerable subjective and objective improvement but was not entirely well. Although examination of the chest revealed no positive

16. Farah,[1] Jocks and Simpson.[9b]
17. Farah,[1] Castellani.[7]
18. Castellani,[7] Stovall and Greeley.[13]
19. Steinfield, E.: Bronchomycosis, M. Clin. North America **15**: 403-411 (Sept.) 1931.
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21. Castellani, Aldo: Notes on Certain Bronchomycoses Which May Simulate Pulmonary Tuberculosis, Am. Rev. Tuberc. **16**: 541-574 (Nov.) 1927.
22. Jocks and Simpson,[9b] Pijper,[10b] Steinfield.[19]
23. Stovall and Greeley,[13] Steinfield,[19] .
24. Grossi and Balog,[10c] Pijper,[10b] Stovall and Greeley,[13] Pijper, A.: Bronchomoniliasis, M. J. South Africa **12**: 129, 1917.

changes, she still had a slight cough and was moderately apathetic and listless, and the yeastlike organisms persisted in the sputum.

She was discharged, December 24, and after three days returned for vaccine therapy. On her second entry, the stools and urine were normal. The hemoglobin measured 80 per cent (Sahli) and the white blood cells numbered 8,000 per cubic millimeter of blood. Yeastlike organisms were still present in the sputum.

The vaccine consisted of a suspension of a loopful of a pure culture of the monilia isolated from the patient's sputum, in 3 cc. of saline solution, heated at 65 C. for one hour. Therapy was instituted by injecting 0.1 cc. of the vaccine subcutaneously. Thereafter the dose was increased by 0.1 cc. and was given subcutaneously at intervals of three or four days. No general reactions were encountered, but the local reactions were fairly constant. These consisted of an area of erythema, from 2 to 5 cm. in diameter, which reached its maximum between twenty-four and forty-eight hours after injection and soon after this began to fade. The reactions were accompanied by considerable induration, pain and tenderness.

Agglutinations performed before vaccine therapy showed a positive reaction with a serum dilution of 1:20 and a negative one with 1:40. During the middle of the course of vaccine treatment, a positive reaction was obtained at 1:80. At the end of the vaccine therapy, agglutination was positive at 1:20 and negative at 1:40. Intracutaneous injection, at this time, of 0.1 cc. of a nucleoprotein fraction of the monilia recovered from the patient's sputum produced an area of erythema 2.5 cm. in diameter in five hours, which disappeared twenty-four hours later.

Fig. 3 (case 1).—Clumps of Monilia in the sputum, showing thick hyphae, conidia and single and budding forms. (The photomicrograph was made by Dr. Frank B. Mallory.)

The patient was discharged during the last week of January 1933. She has been seen four times at monthly intervals since her discharge and has continued to feel entirely well. The cough has been absent and examination of the chest has been negative. Yeastlike organisms have been absent from the sputum. A roentgenogram of the chest, taken five months after discharge, was negative.

CASE 2.—A white woman, aged 60, married, admitted to the Boston City Hospital, Nov. 24, 1932, complained of cough and shortness of breath for the preceding ten days. November 14, the patient suddenly noted the onset of chills, fever and cough. The cough at first was harsh, rasping and nonproductive, but at the time of entry to the hospital it was definitely productive of a thick greenish, mucopurulent sputum. The shortness of breath was definitely worse for the four or five days preceding admission. The patient felt most comfortable at night when sleeping sitting upright in bed. No history of hemoptysis or pain in the chest was obtained.

The family history, occupation and habits were not remarkable.

The past history was essentially negative, except for an attack of bronchitis, sixteen years before admission.

On entry to the hospital, physical examination showed that she was well developed and well nourished, was uncomfortable lying in bed, and was markedly dyspneic. The lips were cyanotic. The mouth showed no ulcerations or exudate. The tongue was red and dry and the pharynx moderately injected. Examination of the lung showed coarse crackling râles, moderately impaired resonance and increased breath sounds in the lower third of both sides of the chest. The peripheral vessels showed slight arterial thickening. The systolic blood pressure was 145 and the diastolic pressure 82.

The urine was not remarkable, except for a very slight trace of albumin and many white cells in one specimen. Culture of a catheter specimen of the urine showed no growth. Examination of the stools was negative.

The hemoglobin was 80 per cent (Sahli) and the white blood cells, on entry, numbered 11,900 per cubic millimeter of blood. A differential count showed polymorphonuclear neutrophils 76 per cent, lymphocytes 20 per cent, monocytes 4 per cent, and eosinophils 0 per cent. Five blood cultures were taken, three of which showed no growth; one was contaminated with Bacillus subtilis and another with diphtheroid bacilli. The Kahn test was negative.

Twenty-one specimens of the sputum were examined. The material was seromucoid to purulent in character. No acid-fast bacilli were found on smear. Polymorphonuclears were fairly frequent and eleven specimens showed the presence of yeastlike organisms. Cultures taken from three carefully obtained specimens of the sputum all showed the fungus.

December 2, a skin test was done with organisms obtained from cultures in case 1 and killed by heating to 65 C. for one hour. One-tenth cubic centimeter of a suspension containing 500,000 organisms per cubic centimeter was injected intracutaneously. This resulted in a painful wheal at the site of inoculation 2 cm. in diameter with an erythematous base 4.5 cm. in diameter, which reached its maximum intensity at the end of two hours.

An agglutination reaction carried out with the patient's serum was markedly positive with a serum dilution of 1:160 and was questionably positive at 1:320.

Although the patient was practically moribund for the first three weeks in the hospital, the temperature tended to be low grade, varying from normal to 101 F. The pulse rate fluctuated with the temperature from 80 to 130 per minute. The respiratory rate for the first three weeks usually varied between 30 and 60 per minute.

The patient was given ammonium chloride, syrup of hydriodic acid and codeine. Iodide therapy was instituted with 15 grains of potassium iodide three times a day and, in addition, 5 grains of creosote daily. This treatment was supplemented a week later by the use of daily doses of 1½ grains (0.1 Gm.) of sodium iodide intramuscularly.

After three weeks of treatment, the patient began to show a marked and progressive improvement, which resulted in her discharge from the hospital six weeks after admission. She was seen by request four months after discharge, at which time she showed slight evidences of myocardial weakness that were attributed to the presence of a considerable degree of arteriosclerosis. An intensive search could bring forth no evidence of monilia infection. Sputum, blood, urine and stool examinations were negative. A slight cough and crepitant râles at both lung bases disappeared on digitalization and the patient again felt entirely well.

Intracutaneous administration, one month after discharge, of 0.1 cc. of a nucleoprotein fraction of the monilia recovered from the sputum of patient 1 produced no reaction.

CASE 3.—An American born housewife, aged 30, admitted to the Boston City Hospital, Nov. 28, 1932, complained of pain in the right side of the chest. Five years before entry she was told that she had pulmonary tuberculosis and was sent to a sanatorium. The patient left that institution against advice about a year before her admission to the Boston City Hospital but promised to continue the therapy with her own physician. Two weeks before entry she began to experience sharp stabbing pains in the right side of the chest, associated with difficulty in respiration.

The family and marital history were not remarkable.

A communication from the sanatorium stated that, before pneumothorax therapy (1930), a roentgenogram of the chest showed infiltration of the left lung field and cavity formation.

Density at the right apex was also noted. Sept. 10, 1931, a roentgen study revealed a left pneumothorax with good collapse and infiltration of the right apex. The last sputum positive for Bacillus tuberculosis was obtained Oct. 9, 1930. The weight on discharge, in November 1931, was 127 pounds (57.6 Kg.). The sputum was negative for acid-fast bacilli.

On admission to the Boston City Hospital, the patient was emaciated. The throat was moderately injected. The trachea was deviated to the right and the chest showed diminished expansion on the left. The right apex was dull to percussion, with increased breath sounds and increased whispered voice. No râles were heard. The left side of the chest exhibited flatness to percussion posteriorly below the level of the fifth rib. Breath sounds and tactile fremitus were markedly diminished over the area of flatness. The right cardiac border was found to be 2 cm. outside the right sternal border. Examination of the abdomen revealed slight epigastric tenderness. The systolic blood pressure was 80 and the diastolic pressure 54. She weighed 116 pounds (52.6 Kg.).

The urine varied in specific gravity from 1.012 to 1.015, with a slight to a large trace of albumin. The sediment, centrifugated, showed occasional red cells, white cells and granular casts.

The hemoglobin was 70 per cent (Sahli). The white blood cells numbered 16,100 per cubic millimeter of blood, with a differential count of polymorphonuclear neutrophils 70 per cent, lymphocytes 26 per cent, monocytes 4 per cent, and eosinophils 0 per cent. The Kahn test was negative.

Seven blood cultures were taken, five of which were negative, one showed Streptococcus viridans and one Staphylococcus albus, obviously a contamination.

The sputum was seromucoid to purulent in character. Fifteen smears of the sputum were examined, one of which was positive for acid-fast bacilli and twelve showing large numbers of yeastlike organisms. On three occasions the sputum was carefully collected for culture and all specimens showed the fungus.

A roentgenogram of the chest on entry showed a left pneumothorax with no free fluid and an infiltration of the right infraclavicular region. The latter was thought to be due to tuberculosis. Roentgenologic studies made a few days later revealed the presence of free fluid in the left side of the chest.

Agglutination reactions carried out with the patient's serum and the organism isolated from the sputum showed a positive reaction with a 1:80 dilution of the serum and a questionable reaction at 1:160.

The patient remained in the hospital one month, showing essentially no change for the first three weeks. The temperature showed a diurnal fluctuation, although not always with an afternoon peak. It frequently rose to 102 F. as the maximum and often dropped as low as 98 F. The respiratory rate during the first three weeks varied from 15 to 30 and the pulse rate fluctuated markedly with the temperature from 88 to 128.

The cough was controlled with elixir of terpin hydrate and codeine. The addition of a chest swathe with complete rest in bed and pneumothorax therapy afforded marked relief for the pain in the chest.

As the patient began to improve symptomatically, she showed a marked disinclination to remain in the hospital for continued therapy and was discharged against advice at the end of the fourth week in the hospital. During this last week, the temperature varied from 98.6 to 99 F., the pulse rate was between 80 and 90 and the respiratory rate was 20. She coughed slightly and had slight pains in the chest. There were still signs of fluid in the left side of the chest, and the sputum showed large numbers of yeastlike organisms with no acid-fast bacilli.

MYCOLOGY

The organisms in the sputums in all the cases of this report were identified first in routine stained smears for Bacillus tuberculosis, in which they were observed as numerous clumps of single and budding cells and mycelia, stained by the methylene blue counterstain. Subsequently they were demonstrated as deep violet staining organisms when stained by the method of Gram. In each instance, specimens for culture were collected only after the most superficial organisms had been removed from the mouth by several rinsings with saline solution, after which a deep cough usually furnished abundant material for examination. Cultures of three specimens of sputum were made in each case on Sabouraud's maltose agar. The most abundant growth was obtained by streaking the characteristic white flakes in the sputum on plates and incubating at 37.5 C. for four days, at the end of which time numerous round, somewhat conical, ivory white colonies, from 0.3 to 0.5 cm. in diameter, were found.

The classification of each organism was based on studies of cell morphology, mycelia and ascospore production, cultural characteristics, sugar fermentations and virulence for animals. The organisms from all three cases were identical.

Cell Morphology. — Hanging drop preparations of cultures from Sabouraud's slants and in plain bouillon were utilized in these studies. After forty-eight hours' incubation at 37.5 C., the fungus appeared, chiefly as single cells and budding forms with a few short thick hyphae. The cells measured from 4 to 12 microns in diameter and buds varied from a fraction of this to the same size as the parent. Hyphae showed marked variation in length and were from 1.5 to 2.0 microns in thickness. After longer periods of incubation, the hyphae increased markedly in number and in length and showed definite segmentation with oval conidia, from 2 to 5 microns in greatest diameter.

Mycelia Production.—Isolated colonies on Sabouraud's maltose agar plates at the end of six days' incubation at 37.5 C. showed a narrow fringe of mycelia. This widened to a band from 0.5 to 1.0 cm. in width on about the fifteenth day of incubation, at which time the colonies had become brown and dry, and growth had ceased. Gelatin stabs were made and incubated at room temperature for seven days, at which time a marked lateral outgrowth appeared along the line of stab, greatest in extent at the surface and gradually decreasing to less than 1 mm. in width in the depths of the tube, thus growing in the typical inverted "pine tree" arrangement. No liquefaction occurred. Microscopic studies of the mycelia were made by fixing the gelatin stab culture in 10 per cent neutral solution of formaldehyde for twenty-four hours, cutting it in thin slices and mounting it on slides in glycerin jelly. The mycelial threads began in a mass of cells in the line of the stab and extended outward with clusters of from ten to twenty conidiophores arranged at intervals of 30 microns or less along the thread. The largest clusters were found in the distal portions and an occasional segmented branch arose from the clusters and extended outward for from 150 to 200 microns, with a few round or oval conidia arranged at the points of segmentation and terminally.

Ascospore Production.—The surface growth on gelatin stabs was examined after seven days' incubation for the presence of ascospores.[25] In no instance could any be demonstrated.

Cultural Characteristics.—The colonies on Sabouraud's agar at the end of four days' incubation at 37.5 C. were as described in cultures of the sputums. In plain bouillon, growth was abundant in the bottom of the tube with clear fluid above. No ring or pellicle was formed.

Sugar Fermentations.—A base was used, consisting of 1 per cent peptone and 0.5 per cent sodium chloride,

25. Nye, R. N.; Zerfas, L. G., and Cornwell, M. A.: The Presence and Importance of Yeastlike Fungi in the Gastro-Intestinal Tract in Pernicious Anemia, in Other Diseases and in Normal Individuals, Am. J. M. Sc. **175**: 153-174 (Feb.) 1928.

with 1 per cent Andrade's indicator added and so adjusted as to be light pink when hot and colorless when cold. This was autoclaved for twenty minutes at 15 pounds pressure. To each tube, 1 per cent of chemically pure sugar was added, the latter having been sterilized in 10 per cent solution previously, by heating in the Arnold steam sterilizer for twenty minutes on each of three successive days. Control tubes consisted of the peptone water base inoculated with the fungus. Dextrose, levulose, maltose, saccharose, galactose, lactose, mannose, rhamnose and raffinose were used in the determinations. Transplants were made from the growth on plain agar slants after forty-eight hours' incubation at 37.5 C. Gas formation was shown by the use of Dunham tubes. Readings were made at the end of two, three, five and seven days' incubation at 37.5 C. These were the same on the fifth and seventh days, and this was accepted as the characteristic fermentation. Results were as follows with organisms from each of the three cases: acid and gas production in dextrose, levulose, mannose and maltose; acid in saccharose and galactose; no acid or gas in lactose, raffinose and rhamnose.

Milk.—A special milk medium containing 0.5 per cent calcium lactate was prepared, according to the method described by Stovall and Bubolz.[26] This was inoculated with 0.1 cc. of a salt solution suspension, obtained by washing a forty-eight hour growth from a Sabouraud agar slant. The cultures were incubated at 37.5 C. for one week. No coagulation was observed.

Virulence.—Virulence tests were carried out, rabbits being used. Approximately 100×10^6 organisms were injected into an ear vein. Each of the three fungi caused death in from four to six days. Autopsy revealed numerous small abscesses in the kidneys, from which cultures yielded organisms identical with those injected. Blood cultures were negative. Microscopic studies confirmed the gross diagnosis and yeastlike fungi, occurring chiefly as single and budding forms, but with a few hyphae, were demonstrated in the lesions. Intrapulmonary injection of 50×10^6 organisms in 1 cc. of saline solution was made. One rabbit injected with the organism from patient 2 died in six days with macroscopic lesions in the kidneys as already described, and with nodules at the point of injection in the lung and fibrin deposit on the pleural surface. Microscopic studies showed kidney lesions as described previously. Sections through the nodules in the lungs showed extensive necrosis of the parenchyma, collections of polymorphonuclear neutrophils and numerous yeastlike organisms with short thick hyphae. The other rabbits were killed six weeks after injection and presented marked adhesions between the pleural surfaces in the region of injection and nodules from 0.3 to 0.5 cm. in diameter with soft yellow centers in the adacent lung tissue. Cultures yielded the same organisms as described previously. Microscopic examination showed these lesions to consist of a central necrotic zone, containing numerous single and budding cells and masses of mycelia, surrounded by a zone of connective tissue.

Organisms from the sputums of each case (1) were yeastlike in structure, (2) produced segmented mycelia readily in culture mediums, (3) did not form ascospores, (4) fermented certain sugars with gas as well as acid formation, (5) did not coagulate milk, and (6) were pathogenic for rabbits. On the basis of the first four of these characteristics, the organisms are identified as belonging to the genus Monilia or Parasaccharomyces. Because of the pathogenicity for rabbits, as well as the sugar fermentations, all three fungi can be placed in the group Parasaccharomyces A, described by Nye.[25] Except for the fact that no gas formation was observed in galactose, these organisms might be positively identified as Monilia type II, recently described by Stovall and Bubolz,[26] which includes, among other species, Monilia albicans Craik, Monilia psilosis Ashford and Monilia pinoyi Castellani. Since the most characteristic biochemical reactions are obtained in maltose and saccharose, the organisms from these three cases would seem to belong to Monilia type II, in spite of their failure to form gas in galactose.

26. Stovall, W. D., and Bubolz, A. A.: Yeastlike Fungi: Differential Characteristics and Case Reports, J. Lab. & Clin. Med. **18:** 890-901 (June) 1933.

COMMENT

Three cases of pulmonary moniliasis have been presented, in two of which the yeastlike fungus was the primary etiologic agent and in one a secondary invader. The clinical pictures varied markedly and it can be readily seen that symptoms and physical signs alone cannot be used as dependable criteria in the diagnosis of the disease. The establishment of the diagnosis of pulmonary moniliasis requires certain definite evidence in addition to a suitable clinical picture. The presence of typical organisms, in the absence of acid-fast bacilli, in a carefully obtained specimen of the sputum is of utmost importance.[27] Although it has been maintained that these organisms can be found in the sputums of normal individuals,[7d] most observers feel that monilia is an unusual mouth organism.[28] Consquently, its presence in any sputum deserves careful consideration.

It has also been maintained that an absolute diagnosis of pulmonary moniliasis depends on the demonstration of the pathogenicity of the isolated organism for laboratory animals.[29] Against this point of view, however, it has been shown that monilias causing similar bronchial reactions may vary greatly as regards their pathogenicity.[21] The fact that yeastlike fungi may be pathogenic for man and not for laboratory animals has been a repeated observation.[30] Also, monilias that are fairly common inhabitants of the normal gastro-intestinal tract in man have been found by Nye [31] to cause death in rabbits when administered intravenously. Peckham [32] has shown that monilia, saprophytic in the human being in other locations, is pathogenic for guinea-pigs. Hence it would seem that the animal pathogenicity of this group of fungi is no criterion for proof of etiologic relationship to disease in man. Many investigators have come to the conclusion that the mere presence of Monilia in large numbers in the sputum of a patient suffering from bronchopulmonary disease indicates that these organisms are primary etiologic agents or secondary invaders.[33]

Although much has been written concerning the value of complement fixations and agglutination reactions, these observations have not been consistent enough to be of sufficient value to establish the diagnosis.[34]

27. Wallace and Tanner,[2d] Castellani,[7] Mendelson.[9e]
28. Stovall,[3] Pijper,[10b]
29. Warr,[5] Grossi,[16a] Redaelli,[15]
30. Wallace and Tanner,[2d] Stovall,[3] Stovall and Greeley,[19] Castellani, Aldo: Bronchomycoses, Mil. Surgeon **57:** 113-133 (Aug.) 1925.
31. Nye, R. N.; Zerfas, L. G., and Cornwell, M. A.: The Pathogenicity of Yeastlike Fungi Isolated from the Human Gastro-Intestinal Tract, Am. J. M. Sc. **178:** 515-528 (Oct.) 1929.
32. Peckham, J. F.: Study of Yeasts from Human Sources, J. Infect. Dis. **37:** 53-61 (July) 1925.
33. Wallace and Tanner,[2d] Stovall,[3] Castellani,[7] Jorkes and Simpson,[9b] Pijper,[10b] Stovall and Greeley,[3] Steinfeld,[19] Buchanan, J. A.: Bronchomycosis; Significance of Yeasts in Sputum, Internat. Clin. **2:** 65-70 (June) 1930.
34. Farah,[4] Jorkes and Simpson,[9b] Pijper,[10b] Steinfeld,[19] McKinney, M. J.: Yeastlike Organisms of Human Origin, J. Infect. Dis. **44:** 47-55 (Jan.) 1929. Hoffstadt, R. E., and Lingenfelter, J. S.: Pulmonary Infection Caused by Monilia Balcanica (Castellani), Am. J. Trop. Med. **9:** 461-469 (Nov.) 1929. Kurotchkin, T. J., and Chu, C. K.: Bronchomoniliasis; Serological Studies on a Case, Nat. M. J., China **15:** 403-409 (Aug.) 1929.

Agglutination reactions with monilia strains from the cases reported in this paper and twenty-six serums from patients with no evidence of monilia infection showed negative results in only nine instances. The other serums showed agglutinin titers ranging from 1:5 to 1:80, only one, however, showing this rather high value. Skin tests have been more valuable. Balog and Grossi [35] report nonspecific reactions with killed monilia cultures, but accurate specific reactions with living organisms of the species Monilia pinoyi. The results with the intradermal injection of killed cultures recorded here agree with theirs. Living cultures of Monilia pinoyi were not utilized. The results with a monilia nucleoprotein fraction, prepared by Dr. R. N. Nye and so diluted as to give negative reactions when administered intracutaneously to thirteen controls, showed a specific reaction in case 1 after vaccine therapy but was negative in case 2 one month after discharge from the hospital. One control subsequently showed a positive reaction.

So, at present, it seems necessary to base a positive diagnosis of primary monilia infection on the presence of large numbers of the organism in the sputum in the absence of Bacillus tuberculosis and with additional evidence that may be obtained from roentgenologic observations, therapeutic tests with iodides and, possibly, skin tests performed with living organisms of the species Monilia pinoyi. The possibility of inducing infection of the skin by use of the latter organism would seem to be a factor that would make this test undesirable. Balog and Grossi, however, with the strain used by them, in no instance observed such a result. Perhaps further studies with a nucleoprotein fraction from monilia may give as good a result and yet offer a less dangerous means of demonstrating the relationship existing between the isolated yeastlike organism and the lesion in the patient.

It is important to bear in mind that no characteristic clinical picture is found in pulmonary infections with Monilia. Although most cases may have a striking similarity to pulmonary tuberculosis, it is not unusual to find cases of pulmonary moniliasis with an acute onset. The diagnosis of moniliasis should be borne in mind in any case of pulmonary disease in which the etiology is questionable.

SUMMARY

In three cases of monilia infection of the lungs, the organism was the primary agent in two and in one an invader secondary to Bacillus tuberculosis.

A marked variation in the clinical picture of pulmonary moniliasis was observed in the cases presented.

Excellent results were obtained with the use of iodides and with iodides supplemented by vaccine in the treatment of the cases of primary infection.

There are means of demonstrating the relationship of Monilia recovered from the sputum to the disease process in the patient. Agglutination reactions proved to be of uncertain value in the establishment of a diagnosis.

It is important to consider a diagnosis of pulmonary moniliasis in cases of unproved and atypical tuberculosis.

It is suggested that, in the wide group of cases clinically classified as chronic bronchitis, Monilia should be considered as one of the many possible etiologic agents.

35. Balog, P., and Grossi, G.: Allergie der Haut bei Lungen Moniliasis, Arch. f. Dermat. u. Syph. **157**: 549-554, 1929.

NEUTROPENIA FOLLOWING AMIDOPYRINE

PRELIMINARY REPORT

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LOS ANGELES

The increasing number of cases reported in recent years presenting the syndrome of agranulocytic angina or malignant neutropenia has excited comment from many observers. Numerous drugs, organisms and toxins have been connected with the disease entity but definite confirmatory clinical and experimental data have been lacking.

Kracke [1] in 1932 was able to induce the characteristic blood picture in rabbits with small subcutaneous injections of benzene following the lead of Selling [2] in 1916 in demonstrating the leukotoxic effects of benzene on myeloblastic tissues. Kracke also produced a marked leukopenia with subcutaneous injections of orthooxybenzoic acid and by the intravenous injections of hydroquinone. He was unsuccessful in depressing the leukocyte count with a group of other substances, as acetphenatidin, peralga (barbituric acid and amidopyrine), dial, resorcinol, pyrocatechin, orthocresol, para and metaoxybenzoic acid and 50 per cent alcohol. To one rabbit he administered from 5 to 10 grains (0.3 to 0.65 Gm.) of amidopyrine daily by mouth for forty-five days. A persistent leukocytosis was obtained.

During the past six to eight years, one of us (A. M. H.) has had occasion to treat fourteen consecutive cases of agranulocytic angina. Thirteen of the patients died—some before the advent of pentnucleotide therapy and several since. In August 1933, one patient developed the clinical picture after two weeks' ingestion of dinitrophenol, which she took on her own behest for reduction purposes. Following roentgen therapy and the administration of pentnucleotide, she recovered. Her illness prompted us to review all the preceding cases of agranulocytic angina we had observed and, to our astonishment, we noted that the only common factor in the twelve cases seen to that date had been the ingestion of amidopyrine. All of these patients had received amidopyrine alone or in conjunction with codeine for the pain of arthritis, sciatica, bone tumor, and so on. A few had received some barbital products, as phenobarbital, pentobarbital or iso-amylethyl barbituric acid. None had been given allylisopropylbarbituric acid combined with amidopyrine (allonal).

We therefore determined to investigate the possibility of the experimental production of the neutropenic state by means of amidopyrine.

Oct. 27, 1933, Madison and Squier [3] reported before the Central Society for Clinical Research their experiences concerning thirteen cases of agranulocytic angina,

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1. Kracke, R. R.: The Experimental Production of Agranulocytosis, Am. J. Clin. Path. **2**: 11 (Jan.) 1932.

2. Selling, L.: Benzol as a Leukotoxin, Johns Hopkins Hosp. Rep. **17**: 83-142, 1916.

3. Madison, F. W., and Squier, L. L.: Primary Granulocytopenia After Administration of Benzene Chain Derivatives, abstr. J. A. M. A. **101**: 2076 (Dec. 23) 1933; The Etiology of Primary Granulocytopenia (Agranulocytic Angina), ibid. **102**: 755 (March 10) 1934.

in all of which various barbiturates, usually in combination with amidopyrine, had been administered. They gave allylisopropylbarbituric acid with amidopyrine (allonal) to eleven rabbits. One rabbit showed an abrupt drop in the granulocyte count on the twenty-sixth day and died on the thirtieth day. There was no effect on the remaining rabbits.

In November 1933, Watkins[4] commented on the possible rôle of barbiturates and amidopyrine in the causation of leukopenic states in a series of thirty-two cases seen at the Mayo Clinic. Of this group of patients, "twenty-four had taken amidopyrine or a derivative of barbituric acid for varying periods before the onset of the granulocytopenia." In the remaining eight cases, no record could be found that any drug had been used before the onset of the illness, but all "had been under medical observation for chronic complaints or had been hospitalized for surgical procedures. It is possible that these patients may have received barbiturates or amidopyrine."

Subsequent to the publication of these observations, from personal communications at least four other patients have been noted to develop malignant neutropenia following the use of amidopyrine.

Under our very eyes, our fourteenth patient recently developed the disease:

A man, aged 58, was admitted to the Santa Fe Hospital for an otitis media, Nov. 27, 1933. The temperature was normal. The white blood corpuscles numbered 6,000, with 58 per cent polymorphonuclear leukocytes. A suppurating mastoid developed, and on December 18 a mastoidectomy was done. During the following thirty-six days he received a total of 75 grains (4.9 Gm.) of amidopyrine for headache. Jan. 23, 1934, he developed a sore throat and temperature to 103.4. His leukocyte count on that day was 1,500, with 3 per cent polymorphonuclear cells. He died, January 27, in spite of vigorous therapy with pentnucleotides and liver extract. His leukocytes dropped to 450 cells, with an entire absence of neutrophils, before death.

The remainder of our cases practically duplicate this. All but one of the patients had received amidopyrine in doses of from 5 to 25 grains (0.3 to 1.6 Gm.) a day—often in association with half grain (0.03 Gm.) doses of codeine for relief of pain of varied origin. One patient had two attacks six months apart, dying in the second. In the one exception in our series of fourteen cases, only dinitrophenol, 100 mg. four times a day for two weeks, was administered. The patient did not take any other medication whatever and is certain that no amidopyrine or barbiturates were available in her home. She is the only patient in the series who is alive.

Commencing in December 1933, our experimental work on rabbits was carried on. Amidopyrine alone was used in contrast to the combination of Madison and Squier of amidopyrine with allylisopropylbarbituric acid, because amidopyrine was the only drug used in thirteen of the fourteen cases we had observed.

The results of our animal experiments will be given in detail in a later report. At the present time we have definitely shown that amidopyrine has an effect on the hematopoietic system of rabbits. Doses of this drug varying from 0.2 to 0.9 Gm. per kilogram given by mouth produce a definite leukocytosis followed in a few weeks by a depression of the total white count. In some of the rabbits the proportion of polymorphonuclear leukocytes has been reduced to as low as 8 per cent, while in all the rabbits the granulocytes have been below 20 per cent during the depression of the total counts. The controls remained unchanged.

COMMENT

The common factor in amidopyrine, dinitrophenol, benzene, arsphenamine, ortho-oxybenzoic acid and hydroquinone, all of which have produced neutropenia experimentally or clinically, is the benzene ring. Whether the latter is the actual toxic agent in the production of neutropenia needs further experimentation, part of which we are now undertaking. Our work points to amidopyrine as having a definite effect on myeloblastic tissue similar in man and in rabbits. Whether this is an individual susceptibility of the nature of an allergic reaction, as suggested by Pepper,[5] remains to be determined. Until it is, the use certainly of amidopyrine alone or in combination with other drugs should be restricted to patients having leukocyte counts several times a week.

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4. Watkins, C. H.: The Possible Rôle of Barbiturates and Amidopyrine in Causation of Leukopenic States, Proc. Staff Meet., Mayo Clin. 8:713 (Nov. 22) 1933.

5. Pepper, O. H. P.: Leukopenia: A Review with Special Reference to Agranulocytic Angina, California & West. Med. 35:173 (Sept.) 1931.

TUBERCULOUS CERVICAL ADENITIS

A STUDY OF POSTOPERATIVE END RESULTS

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The data presented in this paper are based on a series of 115 cases of tuberculosis of the cervical lymph nodes in which operations were performed by one of us (Stanton) over a period of twenty-six years. One hundred and seven of these cases have been followed for a total of 1,348 years, or an average of 12.5 years each. In all but two or three perfectly typical cases, the diagnosis was confirmed by histologic examination of tissues removed at operation.

This group consisted of 56 males and 59 females. The age distribution when these cases came under our observation is given in table 1.

The duration of the glandular involvement before surgical intervention was sought is given in ninety-four histories. Forty-five, or 48 per cent, came to operation within six months after the enlarged glands were first noted; nineteen, or 22 per cent, between six months and a year; eleven during the second year; nine during the third year, and ten after more than three years.

The previous treatment as recorded in the histories is given in table 2.

When these patients came under our observation, they presented pathologic lesions varying from multiple involvement of the great majority of nodes on one or both sides of the neck to involvement of only a few nodes or involvement of one or more caseous nodes associated with localized abscesses. Of the 115 cases, 41 were described before operation as presenting abscesses or fluctuating masses in the neck. In twelve additional cases there were sinuses. Thus, the abscess and sinus cases comprised nearly half the total cases. Eight patients—all adults—presented at the time of their first visit definite clinical evidences of pulmonary tuberculosis.

The treatment given these patients while under our observation was almost entirely surgical and hygienic. X-rays, radium, special lights and vaccines were

scarcely used at all. The same may be said of the various local injections, such as Beck's paste.

The surgical treatment in the cases covered by this study varied according to the type of lesion from complete excisions involving entire chains of glands to the simple incision of localized abscesses with the simultaneous removal of the node or nodes responsible for the abscess. The importance of removing the causative node is illustrated by the fact that in this series there were thirteen cases in which abscesses had been previously drained without removal of the gland and all of them had continued to drain constantly or intermittently until the causative focus was removed, after which they promptly healed.

TABLE 1.—*Age of Patients When They Came Under Observation*

At 5 years or under	15
From 6 to 10 years	23
From 11 to 15 years	16
From 16 to 20 years	16
From 21 to 25 years	15
From 26 to 30 years	9
From 31 to 40 years	6
Over 40 years	5
No age given in histories	19

The time required for healing, the duration of drainage and sinus formation were noted in fifty-eight of the histories. For the most part, healing was by primary intention except at drainage sites. Prolonged drainage is noted in a number of cases. Two patients said that it took two months; three said that it required four months. Drainage continued for three months in one case, about one year in five cases and for three years in one case. This patient had become pregnant shortly after operation and this was considered a factor in continuing the drainage. Two patients in whom healing had been good subsequently had a secondary breaking down of tissue with sinus formation when they became pregnant. Both of these pregnancies were within a year of operation.

TABLE 2.—*Previous Treatment*

Incision and drainage once before	12
Incision and drainage twice before	1
Incision and drainage plus excision	1
Excision of glands on same side	4
Excision on same side twice before	1
Previous excision of glands on opposite side	3
Previous excision on one side now present on both sides	3
Excision, 15 injections of therapeutic tuberculin and 3 radium treatments	1
Excision plus iodoform injections	1
Iodoform injections	2
Radium	1
Light treatment	1
Various medicines plus tuberculin	1
Incision and drainage, excision and x-ray treatment	1

Postoperative care was largely directed along hygienic lines, including fresh air, rest and diet. Most of the patients returned to their usual occupations as soon as their incisions were healed. Therapeutic injections of tuberculin were used postoperatively in only one case. No patient was given roentgen or radium treatments postoperatively, although one patient subsequently had roentgen treatments for a recurrence.

At the end of one year following the date when these patients came under our observation, approximately 73 per cent had apparently recovered and were described as being in excellent or good health. Eight are known to have pulmonary tuberculosis as shown on admission and approximately 20 per cent still present evidences of nonpulmonary tuberculous infection in the form of sinuses or demonstrable glandular enlargements in some part of the body. In the course of time all of the patients without pulmonary involvement not yet cured at the end of the first year have recovered as far as any evidence of active tuberculosis was concerned at the time when they were last observed.

At the end of the first year, six patients presented complaints directly referable to the operation itself. The complications may be listed as in table 3.

All of these minor complications cleared up in the course of time.

The data as to the period elapsing before operation, the repeated operations and long-continued treatment in some cases, and the fact that one year after radical surgical treatment between 20 and 30 per cent of the patients still had symptoms relative to the disease is simply in line with the well known chronicity of tuberculosis.

It is only when these cases are followed for relatively long periods that the remarkably good ultimate prognosis of this disease becomes apparent.

TABLE 3.—*Complications in Six Operative Cases*

Itching in scar when tired	1
Tension, distress in shoulder	1
Drooping shoulder with difficulty in raising arm to level of opposite shoulder	1
Numbness on side of face	1
"Increased sensitivity" on side of face	1
Face "crooked" since operation (partial involvement of inframaxillary branch of facial nerve)	1

Of the 103 patients traced for periods longer than one year and averaging thirteen years each, none had died of a nontuberculous disease and only four have died of pulmonary tuberculosis.

Among the ninety-nine survivors, at the time of their last examination only one presented a small but definite tuberculous gland in the neck. In the remaining ninety-eight, all evidences of active tuberculosis have disappeared.

During the time these patients have been under observation, their nontuberculous morbidities have been about what might be expected for a similar age group over a like period of time. Among the observations noted in the histories may be listed the conditions presented in table 4.

TABLE 4.—*Complications Noted in the Histories*

Acute appendicitis	3
Drainage of appendiceal abscess	1
Tonsillectomy	7
Treatment of chronic pulmonary tuberculosis; now well	4
Hypertensive heart disease	1
General weakness; no cause found	1
Breast abscess; tuberculous; drained	1
Choreiform twitchings	1
Positive Wassermann reaction	1
Typhoid	1
Weak ankles	1
Asthma, still present	1
Drainage of tuberculous abscess of upper margin of trapezius	1
Phlyctenular conjunctivitis of eye cured following tonsillectomy	1
Gallbladder attack; also removal of benign tumor of breast	1
Bilateral salpingectomy and oophorectomy	1
Bilateral salpingectomy, oophorectomy and hysterectomy for fibroid plus some urinary frequency	1

Only four of the 107 traced patients have subsequently died of pulmonary tuberculosis. These deaths all occurred in adults who were known to have some degree of active pulmonary tuberculosis at the time they were operated on. The shortest duration was one year and two months and the longest ten years and four months after operation. The other two lived two

years and three months and four years, respectively. Two were men and two were women. The ages at the time of operation were 22, 27, 35 and 19 years and at the time of death 23, 31, 37 and 29 years, respectively. Four other patients with active pulmonary tuberculosis at the time of operation were aged 22, 23, 23 and 43 years, respectively. One was lost track of within the first year but the other three have been followed twelve, sixteen and twenty-one years, respectively. They all report in excellent health at the present time. One child, aged 2 years at the time of operation, was sent to a tuberculosis camp for a while but now, fourteen years later, is in excellent health. It is of interest to note that this boy is a son of one of the adults who died of pulmonary tuberculosis.

During the period these cases have been under observation, the general mortality rate for tuberculosis in this and other countries has been changing so rapidly that it is impossible to calculate the expected mortality from pulmonary tuberculosis for a similar sex and age group without lymph gland tuberculosis. However, in the group under observation, not one of the ninety-nine patients who came for treatment of tuberculous cervical lymph nodes without demonstrable active pulmonary tuberculosis has ever developed any serious form of pulmonary tuberculosis during the aggregate of 1,279 years they have been under observation.

Such observations seem to point definitely to the conclusions:

First, tuberculous cervical adenitis occurring in children and young adolescents when properly treated does not subject these individuals to a more than usual subsequent death rate from pulmonary tuberculosis.

Second, it is difficult to escape the conclusion that lymph node tuberculosis occurring in early life is a clinically observable phase of a form of tuberculosis that serves as an immunizing process actually protecting the individual against lethal forms of tuberculosis.

We feel that the series of cases analyzed in this study is large enough numerically and that the follow-up period has been sufficiently long so that in all probability the concept regarding the prognosis of this disease as herein presented is correct for the period under consideration.

We can find no similar end result reports covering a period of high tuberculosis mortality such as the late nineties or early years of this century. Certainly our results have been much more favorable than those reported by most surgeons and especially those of a slightly earlier period.

Raymond Pearl and others have shown that the enormous drop in the death rate from tuberculosis that has occurred in recent years is a world-wide phenomenon but doubtfully influenced by local or even country-wide crusades against the disease.

Twenty-five years ago lymph gland tuberculosis was a common disease seen frequently in all communities. Today it is a rare disease encountered only occasionally in even the largest clinics. It is just possible that the highly favorable prognosis as shown in our series may be, in part at least, the result of some great biologic phenomenon associated with this disease little understood at this time. It is quite certain, however, that no facts observed in association with this series can be interpreted as an indication that lymph gland tuberculosis occurring in children or young adults is particularly liable to develop later into pulmonary or other serious forms of tuberculosis.

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ALLERGIC-LIKE REACTIONS FROM SODIUM MORRHUATE

IN OBLITERATION OF VARICOSE VEINS

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The search for a perfect sclerosing agent for the obliteration of varicose veins has been marked by the adoption and subsequent neglect of one solution after another. The requirements for an ideal solution are that it be effective, safe and painless. These requirements have largely been fulfilled by sodium morrhuate, and this preparation has been widely accepted as the closest available approach to the ideal medium. Its freedom from danger of local and general reaction has been particularly emphasized. My experience with sodium morrhuate, like that of many others, has been extremely satisfactory, and in both private and clinic work it has largely supplanted all the other agents used. In the absence of any fear of general reaction, I have not hesitated to use it and to advocate it freely. Several recent experiences, however, have indicated that sodium morrhuate may give rise to allergic reactions in sensitized persons. I am unable to find any mention of this possibility in the literature, and it is my purpose in this communication to call attention to it, in order that adequate measures may be taken to avoid it.

REPORT OF CASES

Case 1.—Mrs. I. N., aged 49, with a negative allergic history, had had saphenous vein ligation, followed by a series of sodium morrhuate injections, at intervals of from one to two weeks, with no systemic reaction of any type. When the veins were almost entirely obliterated, an interval of seven weeks was permitted to elapse between treatments, following which two injections of 1 cc. each were given. About twenty minutes after the second injection the patient complained of extreme weakness and dizziness. Consciousness was retained, and there was no cough, pain in the chest, or expectoration. The expression was anxious but there was no cyanosis. There was no detectable pulsation of the radial or other arteries, and auscultation revealed an absence of heart tones over the precordium. The head of the table on which the patient was lying was lowered, and 1 cc. of epinephrine was administered hypodermically. After several minutes the patient stated that she felt better; but she was still pulseless, and the systolic blood pressure was found to be 70. When ephedrine was given the blood pressure gradually returned toward normal, and the patient was permitted to go home. On the following day she seemed completely recovered.

Dr. S. M. Feinberg saw the patient during the attack and termed it an anaphylactoid reaction. He subsequently made skin tests for sensitization to sodium morrhuate. The scratch test was negative, but a positive reaction was obtained on intradermal injection. The patient apparently was not sensitive to sodium morrhuate when the treatments were begun. She became sensitized, however, during the course of treatment, and an injection after an interval resulted in a severe reaction, which resembled an anaphylactic shock.

Case 2.—Mrs. M. G., aged 36, with a negative allergic history, received an initial injection of 0.5 cc. of sodium morrhuate. One week later two injections of 1 cc. each were given. On the following day a severely itching eruption appeared on the neck and chest. She then recalled a milder irritation of the skin of the chest following the first injection. Examination revealed an intense dermatitis involving the chest, neck, face and arms. A dermatologist consulted by the patient considered the lesion a toxic erythema of a papular and urticarial type and thought it might well be allergic in origin. Intradermal skin tests were again positive.

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CASE 3.—Mrs. H. F. had a previous history of urticaria, for which sensitization tests were being made. She had received a number of dextrose and salt injections in the varicose vein clinic of the department of surgery of Northwestern University Medical School with no untoward effect. Following her initial injection with 4 cc. of sodium morrhuate, however, a severe systemic reaction occurred. It began about fifteen minutes after the injection and was characterized by faintness, weakness and rapidity of the pulse, and repeated vomiting. The symptoms lasted for over an hour and then gradually disappeared.

CASE 4.—Miss I. B. had a severe urticarial reaction following the initial injection with sodium morrhuate.

COMMENT

The last three patients mentioned were apparently sensitive to sodium morrhuate and developed reactions following the initial injections. The first patient had received numerous injections, during the course of which, apparently, sensitization appeared. That such reactions are not uncommon is evidenced by the fact that other clinicians with whom I have spoken have had similar experiences. I am indebted to Dr. Géza de Takáts for the following statement regarding his material:

I have observed to date seven cases of sensitization to sodium morrhuate, occurring during the injection treatment of varicose veins. In the first patient, from three to four injections of sodium morrhuate were given at weekly intervals. Following the third treatment, large blotches of urticaria developed around all the sites of previous injection, followed by a generalized itching and rash. In the second patient, treatment was given every third or fourth day, but she missed one treatment, permitting a week to elapse between injections. Following the last treatment, an enormous edema and rash of the entire extremity appeared, with high temperature and a white count of 17,000 with 35 per cent eosinophils. A generalized, confluent rash completed the picture. The third patient behaved very similarly to the first. The fourth patient was remarkable in that she only received one injection, after which an extensive rash on both lower extremities developed. The fifth patient was known to have had hay fever. The sixth patient also showed an unusual picture. She had had biweekly injections for three weeks. Three weeks after the last treatment, she developed localized, badly itching patches at all sites of previous injections. She had eaten fish the night before, which was the only sensitizing factor she could think of. The seventh patient, a woman with very thin, transparent skin and red hair, developed a very severe weeping eczema over both lower extremities following weekly injections of sodium morrhuate.

In none of these patients was there an immediate anaphylactic shock. Scratch tests, made *after* the allergic reactions had subsided, were usually negative. Whether a scratch test during treatment would be of any help is now being determined. Of interest is an eighth case, in which 5 per cent potassium oleate was used and very severe eruptions observed. There is no morrhuic acid at all in this preparation, nor is this oil aromatic.

The source of the allergic reaction to sodium morrhuate is questionable. Sodium morrhuate is an aqueous solution of saponified cod liver oil. Whether the saponified fatty acids themselves are capable of producing an allergic type of reaction or whether it is due to an admixture with liver proteins is as yet unknown. A third possible explanation is that the hemolysis from contact of the patient's blood with the solution may result in the liberation of protein substances that are responsible for the reaction. An experimental answer to this problem is being sought.

It will be seen from the reported cases that scratch tests for sensitization to sodium morrhuate have been uniformly negative. Intradermal injections, on the other hand, gave positive reactions in several of the patients who exhibited sensitization phenomena. Unfortunately, similarly positive results were obtained on intradermal injection in some normal controls, and the possibility of a nonspecific irritative reaction is difficult to rule out. To minimize the dangers of sensitization reactions, it is my practice never to exceed an initial dose of 0.5 cc. of the solution. In patients in whom an interval has elapsed between injections, during which sensitization may have developed, I make a preliminary intradermal injection. If no local reaction occurs, the intravenous treatment is resumed. If a positive reaction develops, the further use of sodium morrhuate is discontinued and another sclerosing agent employed in its stead. Since these precautions were initiated, no further reactions have been observed.

SUMMARY

Sodium morrhuate has been widely accepted as the solution of choice for the obliteration of varicose veins. My experience in general has been extremely favorable. In certain cases, however, sensitization to the solution may exist or may develop. In two of the reported cases this sensitization manifested itself in a severe general shocklike reaction. In two others, skin manifestations occurred. It is urged that the possibility of such a reaction be kept in mind, just as in all other intravenous injections of possibly allergic substances, and that, particularly in patients who have received morrhuate injections followed by a rest period of several weeks or more, intracutaneous skin tests be made to preclude the danger of a serious anaphylactic response.

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TRICHINOSIS OF MAN A COMMON INFECTION

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For years past the senior author has stated to his students in parasitology that trichinosis in man was very far from being a rare disease in the United States. This statement was based on the number of serious cases that come to the attention of medical men and parasitologists, and on the well known fact that diagnosis of typhoid, rheumatism and malaria is not infrequently made when the symptoms are actually due to the presence of trichinae.

In order to obtain more definite data relative to the incidence of trichinosis, a project was outlined involving the examination of diaphragm muscles from the cadavers used in the dissecting rooms of the University of Minnesota Medical School, similar examination of autopsies representing a more normal population, and extension of earlier studies on the occurrence of the encysted worms in local hogs, rats and other animals. Only during the past year, through the active participation of the junior author, have studies on the first subproject been feasible. The results obtained are so strikingly out of line with current conceptions that they should be brought to the attention of the medical profession.

For his ready cooperation in making material available for this study we are under obligation to Dr. C. M. Jackson, head of the Institute of Anatomy. Assistance was rendered also by Dr. R. O. Christenson and Miss Mildred King.

From the University of Minnesota.

More than a century ago the calcified cysts of trichina worms were noted, in the dissecting rooms of Europe, as gritty particles which turned the edges of scalpels. Nevertheless, data regarding their presence in the human body are surprisingly meager and those on record are of but little value. The cysts are invisible to the naked eye unless they are calcified and even then they would be overlooked unless present in enormous numbers. For this reason they would be overlooked altogether in routine postmortems. Ransom,[1] considering "only those series of autopsies in which it appears that trichinae were looked for in at least some of the autopsies," presents the accompanying tabular statement for the United States.

The figures given by the last two workers have been completely disregarded in the past, on the natural basis that they were chance observations in series too small to be of any significance. Those of Williams[2] have been accorded more weight but have often been discounted on the ground that the subjects were largely institutional.

Our own examinations of 117 cadavers in the anatomic laboratories of the University of Minnesota at Minneapolis revealed twenty cases of trichinosis, in

Infestation with Trichinae in the United States

Reporter	Place	Number of Autopsies	Number Infested	Per Cent Infested
Glazier, 1881	New York	170	3	2
Glazier, 1881	Newark, N. J.	100	1	1
Glazier, 1881	Philadelphia	40	1	2.5
Williams, 1901	Buffalo, Philadelphia, Baltimore, Denver	505	27	5.34
Osler, 1898	Baltimore and elsewhere	1,000	6	0.6
Simonds, 1910	St. Louis	100	2	2
Whelpley, 1891	St. Louis	20	1	5
Thornbury, 1894	Buffalo	21	3	14.29

subjects who were never recorded as exhibiting any symptoms of the infection. This makes for the group an incidence of 17.9 per cent. One series of fifty showed ten positives, or 20 per cent. Only two workers since Ransom's report have noted anything comparable to our results and hence we have not brought his tabulation down to date.

Koen[3] says: "Dr. T. B. Pate of Washington University, St. Louis, has been conducting rather extensive research of trichina during the past years. His findings are almost sensational in that they indicate a prevalence of trichinosis in this section of approximately 10 per cent, which is far greater than is reported elsewhere." He had overlooked, as had we, the fact that Dr. F. B. Queen[4] had reported at the New Orleans meeting of the American Society of Parasitologists on 344 consecutive necropsies in Rochester, N. Y., in which artificial digestion of approximately 50 Gm. portions of muscle revealed fifty-nine, or 7.5 per cent, positives. In another series of fifty-nine diaphragms from necropsies in Boston, sixteen, or 27.6 per cent, were positive. The total of seventy-five positives out of 402 examinations gives a percentage of 18.6.

Our series from autopsies is as yet too limited to be significant. However, there is little reason to suppose that the group which reached the dissecting room would have been exposed to trichina infestation any more than would the average of the population. The habit of eating imperfectly cooked pork is not one peculiar to any social stratum. Neither is the quality of the eating place one that insures safety. On the other hand, it is probable that by the artificial digestion of muscle samples as large as those used by Dr. Queen we would have obtained a considerably larger number of positives. Our specimens were sliced thin and mounted in the trichina compressors of the general type of those used by the federal Bureau of Animal Industry during the period when microscopic inspection of pork was carried out.

A rough classification on the basis of severity of the infestation was made. Using on the average 5 square centimeters of the compressed muscle to a slide, we classed those cases in which less than ten cysts were found as "light," from ten to fifty cysts as "moderate" and over fifty to a slide as "severe." The classification is not intended as an index of clinical symptoms, although it is certain that there must have been very definite illness in the half dozen cases classed as "severe." In no instance was there any information to indicate that there had been any suspicion of trichinosis. The most heavy infestation, exhibiting some 350 cysts to the slide, was that of an Irishman, 86 years of age, who died of arteriosclerosis. The cysts were heavily calcified.

That light infestations should be overlooked during the lifetime of the host is to be expected. On the other hand, the fact that serious and even fatal cases not infrequently escape diagnosis was well illustrated during the 1924-1925 outbreaks of typhoid due to eating raw contaminated oysters. In attempting to trace the sources of all reported typhoid cases, the city health department of Boston discovered some twenty cases of active trichinosis, which had been diagnosed and reported as typhoid. Similar results were obtained in Chicago and, doubtless, in other cities. Under usual conditions all of these cases would have remained charged against typhoid.

Two serious fallacies tending to an underestimation of the danger from eating imperfectly cooked pork persist and are widespread. The first is that government-inspected meat is free from trichinae. As a matter of fact, microscopic examination of pork for trichinae was discontinued in 1907. Since then no attempt has been made to carry on such examinations of pork in any part of the United States.

A second fallacy is the peculiar idea that, since federal examinations of millions of hogs showed a trichina incidence of only about 2 per cent, the danger of infection is slight. It would seem unnecessary to point out that the average for millions of examinations are wholly inapplicable to any given community. In such a case there might be practically no infested animals or there might be almost any ratio, dependent on local and temporary conditions.

Since no adequate treatment for the disease is known, it is evident that there is still abundant need for educating the public regarding the source of trichinosis and the simple means of protection that may be taken against the infection. Much would be gained also by the extension to small plants of the federal regulations regarding the preparation of sausages and other pork products of a kind that are customarily consumed without being cooked.

1. Ransom, B. H.: Trichinosis, Rept. 18th Ann. Meet. U. S. Live Stock Sanitary Assn., 1915, pp. 147-165.
2. Williams, H. U.: The Frequency of Trichinosis in the United States, J. M. Research **6**:64-83 (July) 1901.
3. Koen, J. A.: Parasites Transmissible to Man by Eating Meat, North America Veterinarian **14**:14-16 (Sept.) 1933.
4. Queen, F. B.: The Prevalence of Human Infection with Trichinella Spiralis, J. Parasitol. **18**:128 (Dec.) 1931.

ALLERGIC REACTION TO DINITROPHENOL

REPORT OF CASE

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Dinitrophenol has been introduced recently as a therapeutic agent in obesity,[1] its effectiveness arising by virtue of its ability, in small doses, to increase the basal metabolic rate. It is claimed that use of the drug is not accompanied by the unpleasant and dangerous side actions inherent in the use of thyroid gland extract; but its proponents state [1b] that:

> The most important side action encountered was a skin rash, observed in eight patients, or 7 per cent of the entire series. This was manifested, usually after a one day prodrome of mild itching, by a maculopapular or urticarial type of rash. The itching was rather intense, and with the urticaria there was considerable swelling. If the drug was withdrawn, the reaction subsided in from two to five days. . . . In three of the patients, dinitrophenol treatment was successfully resumed after the skin reaction subsided, without recurrence. This type of reaction is similar to the dermatitis medicamentosa of many agents but appears to occur somewhat more often with dinitrophenol in the dosage used than it does with some other common remedies. It seems to be the chief disadvantage in the use of the drug.

Anderson, Reed and Emerson[2] describe a case of toxicity from dinitrophenol resulting in a maculopapular erythematous eruption, pruritus, edema, and pain on motion of the joints. They pertinently suggest that this was an instance of "alpha-dinitrophenol allergy," since "it is apparently not an instance of small therapeutic amounts of the drug producing symptoms described for the known toxic effects of large doses." This suggestion is in keeping with the case I intend to describe, in which I believe I have shown a reaction to dinitrophenol to have been definitely allergic.

REPORT OF CASE

Mrs. S. K., aged 26, was put on a regimen of dinitrophenol by her physician, Jan. 16, 1934. The dosage was 1½ grains (0.1 Gm.) of the sodium salt twice daily. No untoward symptoms developed except increased sweating. In two and a half weeks she lost 2 pounds (0.9 Kg.) in weight. None of the toxic symptoms described by Tainter and his co-workers from overdosage resulted. The past history was negative except for the fact that the patient is definitely allergic. Ingestion of various foodstuffs has at times given rise to one or two urticarial wheals of a transitory character. The foods indicted are among those commonly blamed for allergic manifestions—celery, strawberries and sea food.

I first saw her on the afternoon of February 4, seventeen days after she had started taking dinitrophenol. At this time she presented giant urticarial wheals, the largest I had ever seen. Some were fully 8 cm. in diameter. They occurred on the trunk, buttocks, thighs and upper part of the arms. The face, hands and feet were almost free from wheals. The pruritus was intense. Careful questioning elicited two possible etiologic factors: beets, which she had eaten the previous night, and dinitrophenol. I suggested that she stop the drug at once and report my suggestion to the physician who had prescribed it.

An injection of epinephrine (1 cc. of 1:1,000) and the use of ephedrine sulphate, three eighths grain (0.024 Gm.) by mouth every three hours, brought instant but only partial relief. The rest of the treatment consisted of saline catharsis and ingestion of large quantities of fluids and alkalis. The diet was restricted to beef and rice, these articles being practically always nonantigenic.

Twenty-four hours later typical wheals still persisted, and there was intense angioneurotic edema of the hands and wrists, some swelling of the lips and eyelids, and pains in the joints. Suspecting, from the presence of the urticaria and Quincke's edema, that the symptoms were allergic, I withdrew 10 cc. of blood from a cubital vein of the patient, permitted it to coagulate, and injected 0.1 cc. of her serum intracutaneously into the back of her brother, S. G., a nonallergic individual at two different sites.

On the following day I elicited a positive Prausnitz-Küstner reaction. My technic and method of control were as follows: On one of the two treated sites I made a scratch and applied a small amount of dinitrophenol in powdered form, rubbing it into the scratch with physiologic solution of sodium chloride. Within three minutes a typical wheal and flare reaction resulted. On the other treated site I made a similar scratch and rubbed into it physiologic solution of sodium chloride without the drug. On an untreated site of skin I made a third scratch and here applied powdered dinitrophenol; neither of the last two scratch tests produced any reaction whatever.

At this time, forty-eight hours after the onset of the eruption, the characteristics had altered markedly. Instead of the pruritic urticarial wheals there were large, dusky erythematous blotches, tending to coalesce, distributed over the arms, legs and face. These patches were nonelevated and nonpruritic. The edema of the extremities and face had increased. I made a scratch on the forearm of the patient and applied a small amount of dinitrophenol, diluting it with saline solution. A small wheal was produced at the site of inoculation, and there was immediately a generalized focal response. The dusky erythematous patches became bright red and were elevated above the surface of the surrounding skin, and an intense itching commenced. This focal exacerbation persisted for about three hours. The reaction was somewhat reminiscent of the response of fixed phenolphthalein and antipyrine eruptions to ingestion of further quantities of those drugs.

Ninety-six hours after the onset of symptoms, the eruption had disappeared with the exception of a few diffuse, purplish patches on the chin. A scratch test with dinitrophenol at this time again produced a local wheal and a recurrence of the erythema multiforme-like eruption on the face and the extremities.

Except for an intense yellow, presumably imparted by the drug dye, the urine was normal.

COMMENT

In addition to the case described, I saw one other case of urticaria following the use of dinitrophenol. The course of this case was identical, day by day, with that of the one described. No passive-transfer (Prausnitz-Küstner) test was performed on this individual. Proof of the allergic nature of this eruption is, therefore, wanting. Within the past week I have heard of at least six other cases of skin eruptions following the administration of dinitrophenol. I do not know how many of them were of the urticarial type. How numerous are the other instances in this community is a matter for conjecture. Certainly great quantities of dinitrophenol are being dispensed, judiciously and injudiciously, with and without a physician's prescription.

I believe I have definitely proved that my case of dinitrophenol eruption was allergic. The evidence afforded by the passive transfer of the antibodies in the patient's serum to a normal subject, and their subsequent demonstration by the Prausnitz-Küstner method, is incontrovertible. In addition to this, the local and focal response of the skin of the patient to applications of the drug by the scratch method quite definitely indict the drug as the cause of the eruption. I do not maintain that every eruption following the use of dinitrophenol is allergic in character. But any drug

1. (*a*) Cutting, W. C.; Mehrtens, H. G., and Tainter, M. L.: Actions and Uses of Dinitrophenol, J. A. M. A. **101**: 193 (July 15) 1933. (*b*) Tainter, M. L.; Stockton, A. B., and Cutting, W. C.: Use of Dinitrophenol in Obesity and Related Conditions, ibid. **101**: 1472 (Nov. 4) 1933.

2. Anderson, H. H.; Reed, A. C., and Emerson, G. A.: Toxicity of Alpha-Dinitrophenol, J. A. M. A. **101**: 1053 (Sept. 30) 1933.

which produces pathologic skin manifestations in 7 per cent of those to whom it is administered must be used with caution.

Tainter and his associates maintain that the use of the drug may be renewed with impunity after the skin reaction has subsided. I, for one, would not take the responsibility of telling my patient that it is safe for her to resume the use of dinitrophenol after her skin is again normal, any more than an allergist would tell an asthmatic patient who is allergic to egg white that he might eat eggs again after his asthmatic spasm has subsided.

SUMMARY

1. Alpha-dinitrophenol produces skin eruptions in a large percentage (at least 7 per cent) of those to whom the drug is administered.

2. These eruptions occur when nontoxic amounts of the drug are used.

3. Some of these eruptions are definitely allergic, specific antibodies being produced in some individuals by ingestion of the drug.

4. In at least one case, these antibodies were demonstrable by the Prausnitz-Küstner passive transfer test.

5. It is theoretically dangerous to resume the use of the drug after a skin reaction from its ingestion has subsided.

332 Republic Building.

Clinical Notes, Suggestions and New Instruments

TRICHINOSIS: DEMONSTRATION OF THE PARASITES IN THE BRAIN

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This fatal case of trichinosis is worthy of report for several reasons: At autopsy the parasites were found in the brain; symptoms of encephalitis began three weeks after vaccination against smallpox; eosinophilia was absent; the patient was a child, aged 11 years, and incidentally the child also had sickle-cell anemia. A clinical diagnosis was made of encephalitis of unknown etiology, possibly a delayed postvaccinial complication. Unfortunately, trichinosis was considered neither at the bedside nor in the morgue and the correct diagnosis was made from a study of the microscopic sections of tissues removed at autopsy; only by chance was a small piece of voluntary muscle included in the sections.

REPORT OF CASE

History.—W. A., a Negro boy, aged 11 years, entered the hospital, Jan. 3, 1933, with an admitting diagnosis of encephalitis of unknown etiology. There was a past history of mumps, whooping cough and chills and fever. Three weeks prior to the onset of the present illness he had been vaccinated against smallpox, and other than slight discomfort from the vaccination there was no untoward reaction. It was noted by the parents that he did not "play very well" during the Christmas holidays. For three days prior to admission he had complained of stiffness of the right thigh and left elbow and of pain in the abdomen. On the first day of his illness he had vomited twice. There was no noticeable fever. On admission he complained of pain on motion of both arms and legs.

Physical Examination.—The patient was fairly well developed. He lay quietly in bed in no pain or distress unless moved. He appeared drowsy. Movement of the limbs produced intense pain. There was moderate hypertonicity of all muscles, particularly in the extremities. There was slight generalized edema, which was more pronounced in the dependent parts of the body. He could not open his mouth sufficiently wide for an examination of the pharynx. The tongue was moved with difficulty; he was unable to extend it from the mouth and its surface was heavily coated. The cervical and inguinal lymph nodes were palpable. The eyes had a dull appearance, the pupillary reflex to light was a little sluggish and there was some edema of the eyelids. Inspiration was limited and respiration was of a costal type. The abdomen was slightly distended, tenderness could be elicited along the costal margins and slight rigidity was noted in the abdominal muscles. The spleen was not palpable. Dorsally there was considerable tenderness over the kidneys. The shoulder, hip and knee joints were tender to touch and all movement elicited pain. The arms were held flexed at the elbows and could not be extended. There was such hypertonicity of the muscles of the lower extremities, especially of the flexor groups, that he was unable to stand or walk. The reflexes were much diminished or absent; Kernig's sign was absent.

Course.—On admission his temperature was 101.6 F. and continued during the course generally between 99 and 102. On one day only did the temperature reach a height of 103 F. His respiration varied from 24 to 32 per minute and the pulse rate from 112 to 128. The leukocyte count was always elevated; the lowest of six counts was 12,200 and the highest 16,800 cells per cubic millimeter. The erythrocyte count was 4,600,000 soon after admission and 3,900,000 three days prior to death, and the hemoglobin estimate was 75 per cent and 70 per cent, respectively. On the fourth day in the hospital the differential count was: polymorphonuclear neutrophils, 88 per cent; large lymphocytes, 3 per cent; small lymphocytes, 9 per cent. Four days before death it was: polymorphonuclear neutrophils, 79 per cent; large lymphocytes, 6 per cent; small lymphocytes, 13 per cent; transitionals, 1 per cent; eosinophils, 1 per cent. Examination of the urine was persistently negative. On the third day of admission the spinal fluid pressure was 6 mm. of mercury, the fluid was clear, the cell count was 35; globulin tests (Pandy and Ross-Jones) were negative, and the Wassermann reaction was negative. One week later the pressure was 8 mm. of mercury and the fluid was bloody (traumatic). The spasticity of the muscles improved gradually and in two weeks the patient was able to open his mouth, could use his arms, and frequently expressed a desire to sit up. The drowsiness and fever continued despite the improvement in the condition of the muscles. On the eighteenth day he seemed more drowsy than usual. The following day he became delirious and from the delirium passed into coma and died on the twentieth day after admission, which was the twenty-third day of his illness. An autopsy was performed three hours after death.

Autopsy.—The body was wasted; it was 140 cm. long and weighed about 25 Kg. There were no gross structural changes in the brain except diffuse congestion. Routine sections from the cortex, basal ganglions, medulla and cerebellum were examined and in all sections minute inflammatory foci were observed. Glial cells and a few plasma cells, lymphocytes and polymorphonuclear leukocytes with an occasional endothelial leukocyte were the cellular constituents of these foci. Very rarely there was seen a syncytial mass with five or six nuclei, which resembled the nuclei of the glial cells. In the center of many of these foci a granular wormlike parasite was seen, the embryo of the trichina, one of which is shown in the accompanying illustration. A few parasites were fragmented, but most of them were well preserved and intact. The foci were irregularly distributed in both the white and gray matter and sometimes were near a capillary. They were more numerous in the basal ganglions, medulla and cerebellum than in the cortex. The pia of the cortex and medulla was diffusely infiltrated with a few lymphocytes, plasma cells and polymorphonuclear leukocytes, and a like infiltration occurred around and in the adventitia of the larger blood vessels of the cortex and of the basal ganglions. The infiltration about the vessels was unevenly distributed, with a tendency to be focal. All of the blood vessels were engorged. Many of the neurons in all sections exhibited chromatolysis, pyknosis and sometimes neuronophagia. Of the choroid plexus there was nothing unusual.

The peritoneal cavity contained about 100 cc. of slightly turbid fluid. Each pleural cavity contained about 200 cc. of clear fluid and the pericardial fluid was in excess. The thymus was wasted. The lungs were small, the lower lobes were not

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well distended, and early suppuration was noted. An incidental finding was a small tracheal cyst the size of a grape attached to the trachea at the bifurcation. The heart weighed 120 Gm. The chambers were dilated and the myocardium was pale and flabby. Microscopically there were scattered irregular foci of degenerated fibers, and these areas were infiltrated with a few lymphocytes, plasma cells and an occasional polymorphonuclear leukocyte. In a few foci, slight fibroblastic activity was evident. The liver weighed 985 Gm. The hepatic cells were cloudy and contained an excess of visible fat. The spleen weighed 50 Gm. In a section from one suprarenal gland a microscopic focus of necrosis infiltrated with polymorphonuclear leukocytes was seen in the reticular and the inner half of the fascicular zones. The kidneys, weighing 180 Gm., were in a state of cloudy swelling. The gastro-intestinal tract showed nothing unusual. A section from a mesenteric lymph node revealed no unusual changes. Trichinosis was not suspected in the morgue and unfortunately no specimens of voluntary muscle were selected for microscopic study, but a small tab of voluntary muscle was adherent to the section of the prostate. In this minute tab, about the size of the microscopic field of the two-thirds objective, six encysted trichinae were seen and about these there were a few lymphocytes, plasma cells and polymorphonuclear leukocytes. The erythrocytes in all sections were sickle shaped.

COMMENT

It is rare to find the trichinae in the brain, and although our search in the literature was not complete we could find only four reports. In 1906 Channing [1] stated that in an autopsy at the Boston City Hospital he had found in the cerebrum a few areas of cellular infiltration chiefly of endothelial and neuroglial cells with an occasional leukocyte or lymphocyte, and in some of these foci a part of a trichina embryo was seen. In 1916, from a study of fourteen cases of trichinosis, Salzer [2] wrote: "Trichinae occurred abundantly in the brain and on injection of such tissue into animals the disease can be produced, the eosinophilia being more marked than in any other form of production of the disease." He did not describe the lesion nor did he state whether he saw the parasites or only recovered them by animal transmission. Hassin and Diamond [3] in 1926 described what they termed the second case in the literature in which the invasion of the brain by trichina larvae had been demonstrated. Their case was similar in many respects to ours, a boy, aged 14 years, dying twenty-two days after the onset of symptoms. They reported, however, an eosinophilia of 21 per cent and at autopsy trichinae were found in the meninges, around the vessels of the brain and in the choroid plexus as well as in the substance of the brain. Besides the focal areas they noted toxic changes in the brain, neuronophagia, satellitosis and focal encephalomalacia. They considered these changes the more dangerous condition because they were found without the presence of parasites in the brain of another fatal case of trichinosis. There was also hyperplasia of the spleen. In 1927 Gruber and Gramper [4] reported a case in which they found glial nodules in the brain and cord containing young trichinellae and infiltration of the meninges and about the vessels.

In acute trichinosis the larvae are carried throughout the body by the blood stream and in 1909 the parasites were first demonstrated in the blood of a patient by Herrick and Janeway.[5] MacCallum [6] states that the trichinae lodge in every other tissue but appear to find conditions unsuitable and never develop there; indeed, they are rarely found anywhere else than in the skeletal muscles. However, besides in the brain, blood and meninges the larvae have been found in the placenta, milk of a nursing woman, excised mammary gland, pleural fluid, retina, peritoneal fluid, pus of a furuncle, heart, lungs, bile, pancreas, kidneys, and mesenteric lymph nodes. And Gruber [7] thinks that the histologically demonstrable effect of straying trichinae in the pathologic picture in trichinosis has perhaps not been considered enough, probably because the picture has been eclipsed by the predominating disorder of the muscles. In this respect it should be noted that in our case there was a degenerative and exudative myocarditis, which was probably responsible for the transudate in the serous cavities. Because the exudate in the myocardium was similar to that seen about the parasites, it is possible that the myocarditis was caused by the presence of parasites that had degenerated and disappeared. Such a lesion in the myocardium associated with the presence of the trichinae was observed by Horlich and Bicknell.[8] In the cases reported by Gruber and Gramper [4] and Hassin and Diamond,[3] in which the trichinae were found in the brain, similar myocardial lesions were found.

A number of observers have particularly noted encephalitic and meningitic symptoms in cases of trichinosis, and in 1914 Van Cott and Lintz [9] first demonstrated the trichinae in the cerebrospinal fluid. Our case was of particular interest because the onset of the illness followed vaccination against smallpox and it was thought to be possibly a case of postvaccinial encephalitis. Because of the attention attracted by various kinds of

Section from the lenticular nucleus, showing a nodule with a trichina in the center; slightly reduced from a photomicrograph with a magnification of 500 diameters.

encephalitis today, in the differential diagnosis it is well to bear in mind meningo-encephalitis caused by the trichina.

The third point of interest is the absence of eosinophilia. Brown [10] in 1898 first called attention to the presence of eosinophilia in cases of trichinosis and this sign is commonly considered of diagnostic importance. Adamy [11] states that the conclusive symptom in differential diagnosis is a marked eosinophilia, Chasanow [12] considers eosinophilia the most important characteristic of trichinosis, and Conner [13] states that an absence of eosinophilia throughout the entire course seems to be very rare. On the other hand, many observers have noted the absence of eosinophilia especially in severe and fatal cases

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13. Conner, L. A.: Atypical Clinical Forms of Trichinosis, Ann. Int. Med. **3**: 353 (Oct.) 1929.

of trichinosis. According to Pepper,[14] eosinophilia is present in almost every case but may be absent in extremely severe or fatal cases. Reifenstein and his associates[15] in a review of the literature state that those cases failing to exhibit an eosinophilia at all times during the acute states are to be regarded as the ones in which recovery is most unlikely. Hickling[16] and Walker[17] report that eosinophilia may be absent in the acute phase and later develop in the convalescent period. Aldridge[18] finds that an overwhelming infection may show no eosinophilia, and the one fatal case of twenty reported by Willett and Piau[19] did not present eosinophilia.

It has been noted by Gruber,[7] Pepper [14] and Messner [20] that trichinosis in children usually runs a milder course than in adults, and, according to Pepper,[21] diarrhea is more marked in the cases occurring in children and this probably explains the lack of severity of these cases. It is interesting to note that there was no history of diarrhea in our case nor did the patient suffer from diarrhea while in the hospital.

A final point of interest is the development of trichinosis in a case of sickle-cell anemia. The degree of sickling of the erythrocytes was not determined during life, so that it cannot be stated whether this patient was an active or latent "sickler." At autopsy it was observed that the greater part of the erythrocytes were sickle shaped and the spleen presented the characteristic picture of sickle-cell anemia; that is, the congestion and pooling of the blood about the lymph nodules. It is possible that this condition played no part in the fatal outcome of the disease, yet in our experience patients with sickle-cell anemia have a poor resistance to all types of infection.

SUMMARY

In a fatal case of trichinosis, the larvae were demonstrated in the brain.

The onset, with symptoms of encephalitis, followed vaccination against smallpox.

During the course there was no diarrhea and no eosinophilia.

The patient was a child with sickle-cell anemia.

A METHOD OF CONTROLLING POLLEN REACTIONS

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Pollen reactions in the early days of pollen therapy were so frequent and so severe as actually to menace continuance of this method of therapy in the treatment of pollen hay fever and asthma. Many physicians discontinued pollen therapy on this account. The danger and frequency of reaction have been reduced in several ways, so that at the present time they rarely occur unless some gross error in technic is made.

Cooke [1] suggested a most effective method of controlling reactions after they occur, through the use of a tourniquet applied above the site of injection of the extract.

Duke [2] decided that a great many violent reactions after pollen injections, given with flawless technic, were due to extract getting into veins, capillaries, arterioles or lymph spaces, and he devised a method that seems practically perfect so far as danger to the patient or severe, sudden reaction is concerned. The method amounts to adding epinephrine and ephedrine to the pollen extract and adding diluting fluid to make a total volume of 1 cc. The mixture is then injected subcutaneously distal to a tourniquet around the arm, which prevents any chance of rapid entry of pollen material into the general circulation. The tourniquet is left in place several moments to give the epinephrine and ephedrine sufficient time to constrict the vessels around the pollen extract, so that absorption becomes of necessity slow and gradual. He mentioned delayed reactions, which may occur rarely after several hours. These were mild and could easily be controlled by reapplications of the tourniquet.

Insley [3] reported a case similar to mine and applied Cooke's idea to the treatment for overdosage of epinephrine. I have followed Duke's method of therapy for two years and have had no reactions of importance except in the case reported here, in which a patient by accident was given a gross overdose of extract. Also the only ill effect that I have observed from epinephrine mixed with pollen is an occasional patient who feels nervous and has palpitation after its use. This can be controlled within a matter of seconds by light constriction above the point of injection of the extract.

The gross overdose in pollen extract to which I referred was in a man, aged 24, whom I was treating coseasonally with very tiny doses of extract, such as 0.02 cc. of a 1:10,000 solution of acnida, pigweed, and short and giant ragweed. After obtaining relief for from one to three days after each injection, he was given by mistake 0.04 cc. of a 1:10 dilution. He immediately complained of an intense burning at the site of injection, which led to a quick detection of the error.

Although a tourniquet was in place above the area, a blood pressure cuff was substituted to give more complete control of absorption. Epinephrine was then injected surrounding the extract site. For the next hour the pressure in the cuff was released for only a few seconds at a time, the patient experiencing uncomfortable epinephrine symptoms with the longer periods. The palm of the hand and the arm itched severely and the area surrounding the extract became red, hot and swollen. As the epinephrine became less bothersome, the cuff was allowed to remain open for a period of about forty seconds. Immediate and violent hay fever symptoms followed. The nose closed completely and the conjunctivae became injected.

Epinephrine was given in the opposite arm and another cuff was applied to control any discomfort that might follow. One side of the nose partially opened, when it became necessary to close the cuff because of heart pound.

The pollen cuff was again released and absorption allowed until the skin over the shoulder began to itch. The resulting increase in symptoms was then relieved by release of epinephrine from the opposite arm.

The period of pollen release varied between thirty seconds and one and one-half minutes for the next three hours, each interval being followed by release of epinephrine. The patient experienced little discomfort other than the nasal stoppage and itching of the skin due to a mild urticaria. He had no evidence of asthma at any time.

Four hours after the administration of the extract, release of the pollen cuff resulted in no increase in symptoms. After another half hour of observation the patient was allowed to go home. He felt perfectly well, his nose and eyes were symptom free, and only a few itching wheals remained. That evening while he was at home a mild urticaria appeared, but it faded completely without treatment. His arm was very sore for two days, but symptoms of general reaction were absent. After three days his hay fever recurred so that pollen in correct dosage was resumed and continued throughout the remainder of the season, producing satisfactory relief.

SUMMARY

Vasoconstrictors added to pollen mixtures and given distal to a tourniquet make possible a controlled dose.

Epinephrine given in the opposite arm with the absorption rate controlled by a tourniquet, combined with tightening and release of the tourniquet over the pollen site, gives a very effective treatment method for pollen overdosage.

Clinic Building.

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Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING ARTICLE. IT IS THE FIRST OF A SERIES OF ARTICLES PRELIMINARY TO THE COUNCIL'S INVESTIGATION OF OPHTHALMOLOGIC APPLIANCES.

H. A. CARTER, Secretary.

TINTED LENSES: THE PRESENT DEAL

W. W. COBLENTZ, PH.D., D.Sc.
WASHINGTON, D. C.

At the request of the Council on Physical Therapy, I have inquired into the recent production of tinted lenses and the advertising claims made for them. At the outset it may be stated that, while during the past two years there has been some improvement in the fairness of the claims made in the advertising literature, there is still a long way to go in the presentation of relevant facts as distinguished from unproved theories.

It is a safe guess that these advertisements are not seen by many undiscriminating laymen but are read mainly by trained ophthalmologists. It would therefore be a sad reflection on the intelligence of such readers to assume that they accept the "ballyhoo" part of the advertising as proved facts of importance in their profession.

Two years ago, when the advertising situation in connection with and preparatory to the presentation of data on the transmissive properties of tinted lenses was reviewed,[1] the advertising literature regarding tinted lenses was replete with claims, some of which were evidently the result of ignorance, while others were based on unproved theories. It was then a common occurrence to read: "They increase visual acuity," "they eliminate glare," "they do not distort colors," "they are non-habit forming," and so on.

One kind of tinted lens advertised at that time was supposed to let in light but shut out glare, just as though glare was not a function of the intensity of the incident visible radiation "light" and that the lens was some sort of "one way" light path or, to be more nearly exact, an automatic shutter capable of regulating the light intensity to meet the need for clear vision.

Another advertisement recommended dark glasses for night driving, apparently overlooking the fact that if the glass was sufficiently dark to protect the eye from the glare of an oncoming automobile headlight it would be impossible for the wearer to see in driving, particularly on a black-top road on a cloudy night.

Still another advertiser introduced a little farce by citing the serial number of the patent supposed to contain the formula used in the manufacture of his glass. The patent cited related to a "composition of matter" which was claimed to be "productive of a brilliant glass of a transparent beautifully red color," whereas the advertised product was sky blue.

In contrast with conditions two years ago, at present the advertising situation seems to be somewhat improved. Perhaps this is because some of the incipient claims with alluring advertising possibilities have died in embryo. Take, for example, the question of eyestrain induced in long-distance automobile driving. This cannot be eliminated by a special, laminated windshield, which was the dream of at least one inventor. For, aside from the fatigue caused by strong sunlight reflected from a light-colored road, or from snow (which is easily eliminated by dark, say shade 3, lenses), probably the chief cause of painful "eyestrain" and subsequent headache is a difference in refraction of the unaided eyes. Judging from personal experience, relief from the latter type of eyestrain is obtained by wearing suitably corrected spectacle lenses that give clear vision at a suitable distance ahead of the motor car, without serious impairment of the clearness of vision of far distant objects.

Following the recent vogue, from the cosmetic side, the spectacle advertisements are up to date. Like the child's go-cart, the spectacle frames are now "streamlined," and some are made in colors to match the gowns.

Judging from recent advertisements, the production of new tints in lenses has run its course, at least temporarily. Some of the old standbys are still mentioned: one "cerulean blue," apparently under a new trade name. Just how the light-tinted lenses can reduce real glare [2] is not made clear, granting that they do mitigate a "little glare." Lenses in which the tint is invisible, except when viewed edge-on, are no more useful in reducing glare than common window glass. If there is one question that needs debunking it is the "increase of vision" and the elimination of "eyestraining glare" by wearing light-tinted lenses.

Another question that needs "debunking" and clarification is the extent to which the eye is irritated or kept healthy by wearing lenses that either admit or exclude (depending on the particular product that is being promoted) short wavelength ultraviolet radiation, known to prevent rickets, and hence by inference effective in "vision vitality." When one considers that most objects are viewed in reflected light and that, as a general property, they (except snow) highly absorb the ultraviolet relative to the visible rays, the presence or absence of the ultraviolet rays seems to be of minor importance physiologically and for promoting the sale of lenses. As pointed out in the previous paper, ophthalmologic research will serve a useful purpose in clarifying these questions.

With this temporary let up in the exploitation of tinted lenses, the merits of new types of wide-vision lenses (the "Punktals" and so on) are being extolled. According to recent investigations, the importance of this improvement appears to be greatly overestimated. Just how this type of lens will benefit the average wearer, and just why he should be put to the extra expense of procuring a pair, is questionable. It is true that such a glass may aid a little in the clearness of perception by indirect vision; but once the attention is called to an object on the sideline, the average person will turn the head and hence will profit but little by the use of such a lens in viewing an object in straight ahead vision. In other words, for a reading lens that may have to be changed frequently and that is used only in a sedentary occupation, it is not clear why the many wearers should be put to the expense of procuring a special lens that may perhaps be necessary only for the unfortunate few. For constant wear, in vehicular traffic, such a lens should serve a useful purpose.

European optometric journals carry advertisements of new laminated, nonshatterable, splinterless, safety lenses, claiming absolute and constant clarity, guaranteed for a year. Apparently these are plane lenses of clear glass (unless otherwise ordered) for protection in motoring. At any rate but little is said regarding corrected lenses (though to "correct and protect" is mentioned). Perhaps this is to be expected, in view of

1. Coblentz, W. W.: Am. J. Ophth. **15**:932 (Oct.) 1932.

2. The question of the elimination of "glare" is discussed in THE JOURNAL, Aug. 23, 1930, p. 593. It is shown that only dark shades can eliminate high intensities.

the probable difficulties that may be experienced in grinding a complicated prescription lens on a compound, three-piece medium, consisting of two pieces of glass and an intervening, flexible, lamination of a cellulose material that is subject to changes in dimensions as a result of variations in temperature and by evaporation of the plasticizer.

Without desiring to dispute the importance of eye protection as a general proposition, nevertheless, lest the introduction in this country of such laminated glasses be accompanied by the foregoing exploitation now somewhat in abeyance, it would be desirable to have statistics on the frequency of eye injury in motoring and in other similar pursuits, which are subject to infrequent hazards, as distinguished from the occupational hazards from relatively large flying particles, such as are encountered by machinists, stone cutters and foundry workers.

For protection from flying particles a single, rather thick (3 mm.), clear glass lens is prescribed (Federal Specifications for Chippers Goggles, G. G. G.—G-501). In addition to the extra thickness, extra strength is obtained by a special heat treatment, which results in a uniform radial fracture when the lens is broken by sudden impact. Apparently preference is given to a single piece lens, to insure clearness of vision, instead of a laminated lens of uncertain performances. However, it would be a pessimistic view to assume that a laminated lens, having the optical properties of a single lens, cannot be made. Whether the newly developed laminated glass is the utopian product sought awaits further investigation.

Council on Pharmacy and Chemistry

PRELIMINARY REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING PRELIMINARY REPORT. PAUL NICHOLAS LEECH, Secretary.

PHENYLMERCURIC NITRATE AND PHENYLMERCURIC CHLORIDE

Phenylmercuric nitrate and phenylmercuric chloride were first prepared by R. Otto in 1870. Although these substances have been known for more than sixty years, their effects on animals, bacteria and fungi, their so-called "biological characteristics," seem not to have been studied until Weed began to investigate them at Iowa State College in 1927 and 1928. In his thesis, Weed[1] states that Kharasch also investigated at about this time a related group of compounds as possible agents for the control of seed and plant diseases. The investigations of Weed were continued in association with Dr. Ecker in the Institute of Pathology at the Western Reserve Medical School in Cleveland. Methods of preparation of the compounds were perfected, the compounds were found to be strongly bactericidal and fungicidal, and indications of their possible clinical usefulness were obtained.[2]

Steps to make the compounds available to physicians were begun by Dr. Weed in 1932. The J. H. R. Sales Corporation, Chicago, has presented phenylmercuric nitrate and phenylmercuric chloride for the consideration of the Council. The following dosage forms were submitted:

1. Phenylmercuric nitrate 1:1,200 in a mixture of water 90 per cent and diethyleneglycol 10 per cent by weight.

2. Phenylmercuric nitrate 1 per cent, diethyleneglycol 99 per cent by weight.

3. Phenylmercuric nitrate 1/10 per cent, remainder glycerin by weight.

4. Ointment containing phenylmercuric nitrate 1 part in 1,500 parts by weight of an odorless absorption (oxycholesterin) base.

5. Jelly containing 1 part of phenylmercuric nitrate in 1,500 parts by weight of a mixture of gum tragacanth, glycerin and water.

6. Phenylmercuric chloride 1:30,000 in 0.85 per cent solution of sodium chloride.

Each of these compounds is described by the manufacturer as "a very potent bactericide and fungicide of extremely low toxicity" and is recommended for "general disinfection and for the treatment of bacterial and fungal diseases." Some of the dosage forms have been devised for special uses.

Phenylmercuric nitrate is said to be $C_6H_5HgNO_3$ and phenylmercuric chloride, C_6H_5HgCl. Weed and Ecker have repeatedly emphasized the need of preparing these compounds according to the method perfected by them in order to obtain products of maximum antiseptic power and minimum toxicity for man and animals. In a letter to the Council's secretary, May 15, 1933, Weed expressed the opinion that these compounds obtainable from several manufacturers are not as satisfactory as the compounds prepared by him or according to his method under the supervision of himself and Ecker. Weed has stated, for example, that the preparations of phenylmercuric nitrate obtained from one manufacturer in 1932 were unstable, did not have the same melting points as his preparation, and were irritating; that preparations of phenylmercuric nitrate obtained by Weed and Ecker from another manufacturer were more granular, had different melting points, and were more irritating than Weed's preparations; and that phenylmercuric nitrate obtained by Weed and Ecker from still another manufacturer was more like their own product but was less germicidal. It is evident that, if different brands of these compounds are to be considered by the Council, it will be necessary to determine the special properties of each brand and that reports on their clinical use should contain information on the brand used.

The methods of preparation of phenylmercuric nitrate and phenylmercuric chloride set forth in the presentation to the Council for the products of the J. H. R. Sales Corporation are the same as those published by Weed and Ecker.[2a] On the basis of molecular conductivity measurements these authors concluded that phenylmercuric nitrate is highly dissociated in water. The surface tension of a saturated aqueous solution of phenylmercuric nitrate is that of distilled water[2a] and the solution is neutral to litmus.

TOXICITY FOR MAN AND ANIMALS

Guinea-pigs, rats and mice were given a saturated solution (1:1,250) of phenylmercuric nitrate as their only source of water during periods of two to three weeks. Only a few animals in several large series showed ill effects as the result of ingestion of the compounds.[3] One series of 10 mice was maintained on a 1:2,000 solution of phenylmercuric nitrate as the sole source of water for ten weeks without apparent ill effect (Birkhaug).

Ten cubic centimeters of a 1:1,250 dilution (0.008 Gm. of phenylmercuric nitrate) injected intraperitoneally into rabbits did not produce any symptoms of poisoning. In an occasional animal this solution injected intravenously into rabbits produced edema of the ear but no other symptoms of intoxication.[2a]

Later Weed and Ecker[2c] determined that the "immediate" minimal lethal dose of phenylmercuric nitrate for rabbits when injected intravenously was 1 cc. of the saturated aqueous solution (1:1,250)[4] per hundred grams of body weight. The chief lesion produced was "acute nephrosis, typical of mercury poisoning." The "cumulative" lethal dose was not accurately determined. Irrigations of the bladders of rabbits with a 1:50,000 solution of phenylmercuric chloride in physiologic solution of sodium chloride did not produce inflammation.

Birkhaug[5] found that the minimal lethal dose for rabbits on intravenous injections was 0.01 Gm. of phenylmercuric nitrate

1. Weed, L. A.: The Biological Properties of Certain Organic-Mercury-Salts, thesis, Department of Pathology, Western Reserve University, May 15, 1932.

2. Weed, L. A., and Ecker, E. E.: (a) The Utility of Phenyl-Mercury-Nitrate as a Disinfectant, J. Infect. Dis. **49**: 440-449 (Nov.) 1931; (b) Bactericidal Action of Phenyl-Mercury-Nitrate, ibid. **51**: 309-314 (Sept.-Oct.) 1932; (c) Phenyl-Mercuric Compounds—Their Action on Animals and Their Preservative Values, ibid. **52**: 354-363 (May-June) 1933

3. Weed and Ecker, footnotes 2a and 2c.

4. The Council has been informed by the firm that the solubility of phenylmercuric nitrate as now marketed is about 1:820 and that of phenylmercuric chloride about 1:20,000.

5. Birkhaug, K. E.: Phenylmercuric Nitrate, J. Infect. Dis. **53**: 250-261 (Sept.-Oct.) 1933.

(calculated mercury content 0.0059 Gm.) per kilogram, less than one half the intravenous lethal dose found for metaphen, which contains about the same amount of mercury. Birkhaug determined also that the minimal lethal dose of phenylmercuric nitrate for rabbits, when administered by stomach tube, was approximately 48 cc. of a 0.067 per cent solution per kilogram—approximately three times the lethal intravenous dose. The convoluted tubules of the kidney were especially damaged. Injection of the compound into the tissues caused edema and pain.

The effect of these compounds on man are of special interest. Weed and Ecker [2a] stated in their first paper in 1931: When phenylmercuric nitrate was "applied to the human skin it had no effect. When it was used on the mucous membrane of the mouth a definite astringent action was felt. One person received 250 cc. of the saturated solution 1:1,250 by mouth, with no signs of intoxication. Only a rise of 20 points in the pulse rate was noted."

Birkhaug,[5] using two commercial preparations of phenylmercuric nitrate, ingested four 0.04 Gm. doses of the crystalline product in enteric coated capsules within twenty-four hours. "Slight abdominal pain and loose passages occurred about thirty hours from the beginning of medication." No albuminuria was noted. Birkhaug ingested "repeated series . . . of tablets containing 0.01 Gm. of the crystalline compound . . . twice or thrice daily for periods of one week . . . . without inflicting untoward symptoms and signs of mercurial toxicity."

It is apparent from these studies that phenylmercuric nitrate is a mercurial of relatively low toxicity for man and animals. Phenylmercuric chloride appears to have the same low toxicity. On the other hand, Biskind [6] noted that while application of a 1:1,250 solution of phenylmercuric nitrate to the vagina did not cause irritation, a 1:750 solution in 10 per cent alcohol produced a "chemical burn"; Levine [7] found seven patients who developed "mercurial burns" from applications of these compounds to the skin. Biskind and Levine used products prepared by Weed and Ecker.

Although the toxicity of these compounds is less than that of some other mercurials, it is obvious that claims based on this property must be advanced with caution. It is to be expected that different brands of the products may show greater toxicity and capacity to irritate the skin than others and that some sensitive individuals may be poisoned or "burned" by doses that do not produce disturbance in others.

EXCRETION

There is little or no published information on the excretion of mercury following the ingestion or injection of phenylmercuric nitrate or phenylmercuric chloride. The chief contribution to knowledge of the distribution of phenylmercuric nitrate in the body which is probably converted to the chloride in the body fluids, and its excretion in the urine is the paper by Birkhaug,[5] published late in 1933. The evidence presented by Birkhaug is not chemical but indirect, based on the determination of the bactericidal action of blood, bile, body fluids and urine of rabbits, dogs and man after the ingestion or injection of phenylmercuric nitrate. He found that within thirty minutes after the oral administration of the compound in rabbits the urine began to show antiseptic action (bacteriostatic action). Finally, after the oral administration of 20 cc. of the 0.067 per cent solution of phenylmercuric nitrate every two hours for fourteen hours to a rabbit weighing 2,160 Gm. the antiseptic (bacterial inhibition) values for the urine were: against Staphylococcus aureus, 1:10,240; against B. coli, 1:160; against Streptococcus haemolyticus, 1:20,480. Antiseptic concentrations obtained in the blood of this animal reached 1:640 for Staphylococcus aureus, 1:1,280 for Streptococcus haemolyticus, and 1:12 for B. coli. When this animal (and other animals) was killed twenty-four hours after the beginning of the experiment the urine, cerebrospinal fluid, fecal fluid in the cecum, and bile were found to have noteworthy antiseptic properties. Bile obtained by fistula drainage from two dogs were found to have high antiseptic capacity after oral administration of 50 cc. of the 0.067 per cent solution of phenylmercuric nitrate; infections of the biliary tract in these animals, one due to streptococci and the other due to colon bacilli, cleared up on the sixth day. Following intravenous injection of phenylmercuric nitrate in rabbits, Birkhaug [5] found the blood antiseptic for staphylococci, streptococci, pneumococci and colon bacilli in significant titers. His own urine and blood had antiseptic property following the doses of phenylmercuric nitrate which he took by mouth.

Three points are brought forward prominently by these studies of Birkhaug: (1) The injected or ingested compound is widely distributed in the blood and body fluids (as determined by antiseptic tests); (2) the actively germicidal and bacteriostatic material is excreted in the bile and urine, and (3) oral or intravenous administration of phenylmercuric nitrate gives the blood, cerebrospinal fluid, bile, urine and intestinal contents antiseptic and germicidal properties.

Biskind [6] reports the following data on the excretion of mercury in the urine after application of phenylmercuric nitrate solution to the vagina. The determinations were made by Miss N. E. Schreiber of the Department of Pharmacology, Western Reserve University: Twenty-four hour collections of urine, obtained twenty-four hours after cessation of all treatment, from three women who had been taking daily douches of 1:25,000 solution of phenylmercuric nitrate for six weeks, showed total mercury contents (obtained as the free metal) of: a trace (about 0.008 mg.), 0.022 mg. and 0.104 mg., respectively.

It is pointed out by Biskind that these data are inconclusive, in that no information is available as to the quantity retained in the body or as to the fecal excretion. On general grounds, these figures are regarded as a "negligible output." Biskind states that in antisyphilitic therapy, where quantities of ionized mercury are absorbed, "the urinary excretion of the metal is very much greater than that reported."

BACTERICIDAL ACTION

The tests of the action of phenylmercuric nitrate and phenylmercuric chloride on bacteria in vitro, in mixtures in salt solution, broth, and serum which have been made by Weed and Ecker [8] and by Birkhaug [5] were carried out by adequate methods with adequate controls. The details need not be repeated here. Examples of the results are as follows: Bacteriostatic or growth inhibiting power ranges up to 1:10,000,000 "but usually operates best in dilutions of between 1:125,000 and 1:1,000,000."[2a] Birkhaug found it inhibitory against Streptococcus haemolyticus in a dilution as high as 1:150,000,000; it inhibited spore-bearing B. subtilis in a dilution of 1:12,000,000. Staphylococci, streptococci, gonococci, B. coli, B. typhosus and B. subtilis have been used in these tests. No reports on its action on tubercle bacilli have been published.

The bactericidal action, determined according to the method of Reddish, has been reported by these investigators to be unusually high. The phenol coefficient of phenylmercuric nitrate against B. typhosus was found by Weed and Ecker to be 625. Birkhaug [5] found the following phenol coefficients: against Staphylococcus aureus, 2,259; against Streptococcus haemolyticus, 1,440; against pneumococcus, 1,067; against B. coli, 640; against gonococcus, 889; against B. subtilis, 801. The presence of 50 per cent human serum reduces these values about 10 per cent for vegetative pathogens and about 40 per cent for the spore-bearing B. subtilis. Birkhaug,[5] on the basis of his experiments, makes the following comparison: "Phenylmercuric nitrate surpasses the other disinfectants in the following order: merthiolate, 1.6 times; metaphen, 1.4 times; mercuric chloride, 5.7 times; hexylresorcinol, 9.6 times; mercurochrome, 434 times, and phenol, 1,202 times."

Weed and Ecker [2b] showed that phenylmercuric nitrate in concentrations of from 1 part in 12,500 to 1 part in 37,500 killed various sporulating anaerobes in ten minutes. The organisms used in the tests were Vibrion septique, B. histolyticus, B. chauvoei, B. welchii, B. tetani and B. sporogenes.

FUNGICIDAL PROPERTIES

Weed [1] and Weed and Ecker [2b] have shown that phenylmercuric nitrate inhibited the growth of most of the fungi that

6. Biskind, L. H.: Phenyl Mercury Nitrate: Its Clinical Uses in Gynecology: A Preliminary Report, Surg., Gynec. & Obst. **57**: 261-264 (Aug.) 1933.

7. Levine, Benjamin: Use of Phenylmercuric Nitrate in Tinea and Yeast Infections of the Skin, J. A. M. A. **101**: 2109 (Dec. 30) 1933.

8. Weed and Ecker, footnotes *2a* and *2b*.

cause epidermophytosis when 1 to 5 per cent of the saturated (1:1,250) solution was added to the medium (dilutions of from about 1:125,000 to about 1:25,000). Achorion violaceum was more resistant than other fungi. On the basis of the results of these studies the compound has been used in the treatment of tinea and yeast infections of the skin with apparently good results, as will be noted in a subsequent paragraph on clinical applications.

The fungicidal properties of these compounds appear to have been clearly demonstrated by the results of tests with wood-destroying fungi. Weed's [1] studies have been confirmed by Hatfield.[9] The use of these substances as preservatives of wood and as possible therapeutic agents in the treatment of fungous diseases of seeds and plants do not come within the scope of the Council. These investigations are mentioned because they give additional evidence on the toxicity of phenylmercuric nitrate for fungi.

PRESERVATIVE ACTION

Weed and Ecker [2c] have published the results of experiments showing that enzymes, toxins and antigens are not interfered with nor destroyed by phenylmercuric nitrate or phenylmercuric chloride in concentrations that are capable of inhibiting bacterial growth. These tests were made with pepsin, trypsin, lysozyme, bacterial vaccines, precipitins, complement, diphtheria toxin and snake venoms. As has been stated, proteins are not precipitated by solutions of the nitrate or chloride.

NONCORROSIVENESS

Weed and Ecker [2a] and Birkhaug [5] have reported that phenylmercuric nitrate is not corrosive to metals (except aluminum) and that "surgical instruments can be rapidly sterilized in aqueous solutions of it." [2a] The data on which these conclusions are based are not presented in these papers. There is no reason, however, for doubting the general truth of the statement. On account of the physical peculiarities of surgical instruments, with their hinges, joints, slots, tubes and crevices, the Council believes that exploitation of the claim should not be allowed unless tests are made with each type of instrument.

SKIN STERILIZATION

Birkhaug,[5] using the methods developed in his studies of skin sterilization by metaphen and other disinfectants, found that an acetone-alcohol-aqueous solution of phenylmercuric nitrate (0.034 per cent) disinfected the skin in three minutes. Tests were made with pinch grafts of rabbit's skin and scrapings of human skin. This phenylmercuric nitrate solution was found to be more effective than similar solutions of mercurochrome, metaphen or tincture of iodine.

CLINICAL USE

Only two papers on the clinical use were available to the Council's referee at the time this report was made: one is by L. H. Biskind,[6] the other that of Levine.[7]

Biskind [6] reports on the results of the use of phenylmercuric nitrate in 100 cases of infection of the vagina and cervix (seventy cases in the first series, thirty cases in a second series). No attempt was made to select certain types of cases, and "all consecutive patients seen by the author showing a vaginal or cervical discharge were treated with phenylmercuric nitrate."

After preliminary examination, the taking of material for smears and cleansing the vagina and cervix with dry cotton pledgets, phenylmercuric nitrate solution was instilled into the cervical canal and applied to the vagina.

A tampon soaked with the solution was left in the vagina for twenty-four hours. A 1:1,250 solution of phenylmercuric nitrate was found finally to be most satisfactory and did not cause irritation. Daily douches with this material in a dilution of 1:25,000 were used also in many cases.

The cases treated were diagnosed as follows:

Thirty-two cases, gonococcic endocervicitis (positive for gonococcus).

Nineteen cases, gonococcic endocervicitis (not confirmed by laboratory examination).

One case, gonococcic vaginitis in a child.

Two cases, vaginitis following trauma of pessary or hot douches.

Two cases, vaginitis due to Trichomonas vaginalis.

One case, abscess of Bartholin's gland, incision and drainage.

One case, postoperative rectovaginal fistula.

Forty-two cases, various forms of nongonorrheal endocervicitis, "with a host of other conditions referable to the pelvis."

Among the cases of gonococcic endocervicitis, numerous patients had been resistant to various forms of treatment. When phenylmercuric nitrate was used, the discharge was reduced in from three to seven days. Biskind states that "phenylmercuric nitrate was used to clean up the secondary infection, to eradicate the primary infection, and then to maintain the areas clinically free from infection while other treatment was used to heal associated conditions, e. g., silver nitrate or the actual cautery for cervical erosions." The Council's referee could not find in this paper any proof that the primary gonococcic infection was eradicated. The evidence indicates that these patients were observed during a period too short to determine whether or not permanent cures had been achieved.

All the other conditions were likewise greatly improved or cured except two cases of Trichomonas infection of the vagina, which were not affected by phenylmercuric nitrate. The rectovaginal fistula in one case closed rapidly under the influence of this antiseptic.

Biskind's report is highly favorable to phenylmercuric nitrate. It is to be noted that it is a "preliminary report." It is necessary to view these results and conclusions, as Dr. Biskind does himself, with caution, waiting for the results of more trials and longer periods of observation.

A typewritten report has been received from a physician, describing three cases of gonorrhea and four cases of leukorrhea treated with phenylmercuric nitrate. All the cases "were cured in from one-quarter to one-half the time required by other germicides; or, in other words, instead of taking four to six months to cure the ordinary case, these cases have been cured in from six weeks to two months."

Other letters from physicians report favorable results of the treatment of peritoneal tuberculosis with a sinus tract, and cases of osteomyelitis. In addition, the Council has been supplied with a list of twenty-six physicians and three dentists who have used phenylmercuric nitrate in their practice.

Levine's report [7] is an account of unusually favorable results in the treatment of "tinea and yeast infections of the skin" with phenylmercuric nitrate.

A lotion containing 1:1,000 phenylmercuric nitrate in an emulsion of gum tragacanth was found to irritate the skin. A 1:1,250 solution of phenylmercuric nitrate in a gum tragacanth lotion was decidedly "less irritating." (The referee noted that these irritating effects occurred with a preparation supplied by Weed and Ecker). Finally, an ointment containing phenylmercuric nitrate in a concentration of 1:1,500, with 10 per cent glycerin in an oxycholesterin base, was found to be nonirritant and most satisfactory for the treatment of a variety of dermatomycoses.

Levine says: "Of 262 cases treated, 205 were carefully followed up and the patients discharged as cured. The remaining 57 patients were seen but once after the beginning of treatment and the data in these cases remained incomplete. Of the 205 patients, 193 had tineas and 12 had interdigital saccharomycosis." All the 193 cases of tinea were "cured." The types of fungous infections were not specified according to the micro-organisms, but mention is made of tinea of the feet, tinea cruris, tinea of the axillae, tinea circinata of the glabrous skin, tinea versicolor and tinea of the scalp and face. In interdigital saccharomycosis, usually a very refractory infection, Levine asserts, "the length of time necessary to effect the cure varied from two days to four weeks, with an average of two weeks." In some cases, recurrence was not observed within ten months. Levine concluded that phenylmercuric nitrate proved highly efficacious in the treatment of tineas and yeast infections of the skin, "producing cures when other standard medicaments had failed."

Although the Council's referee has not seen these cases and has not had an opportunity to observe the treatment of ringworm infections with phenylmercuric nitrate, he thinks that the

9. Hatfield, J.: Am. Wood Preservers' Ann. Report, Jan. 26, 1932.

evidence is not yet sufficient to warrant acceptance of the claim that this compound cures fungous infections of the skin so readily. Levine's paper presents considerable evidence that the drug may be very useful in these conditions.

DENTAL USES

There are no published reports on the use of these compounds in dentistry and stomatologic practice. According to the firm, Prof. T. J. Hill of the School of Dentistry and of the Institute of Pathology, Western Reserve University, has succeeded in incorporating phenylmercuric nitrate in dental cement, making the cement highly bactericidal and bacteriostatic, higher in these respects than any cement so far known. Dr. Hill has reported his observations at the Dental Association meetings at New York. The compounds are said also to have proved their effectiveness in the treatment of various forms of dental infections.

The Council wishes to secure close cooperation with the Council on Dental Therapeutics of the American Dental Association in reaching conclusions on the permissible dental and stomatologic claims for these products. They should, no doubt, be submitted by the manufacturer or distributor to the Council on Dental Therapeutics.

SUMMARY

Test-tube experiments have shown that phenylmercuric nitrate is a powerful germicide and fungicide of wide-ranging effect and relatively low toxicity. Fewer tests have been made with phenylmercuric chloride, but it seems likely that the two compounds are equally active.

Experiments with animals indicate that the ingestion of phenylmercuric nitrate may lead to strong bacteriostatic and bactericidal effect in the blood, cerebrospinal fluid, bile, feces and urine.

It seems to be clearly indicated that phenylmercuric nitrate can disinfect the skin, disinfect instruments without corroding them, and preserve biologic products against bacterial growth without destroying their specific properties and actions.

The few preliminary clinical reports available indicate that phenylmercuric nitrate and phenylmercuric chloride may prove to be useful chemotherapeutic agents for the treatment of some bacterial and fungous infections and are applicable to the treatment of a variety of disease conditions due to infection. This clinical evidence needs extension, confirmation and the test of time before it can be accepted as conclusive.

Phenylmercuric nitrate appears to be useful in dentistry and in stomatologic practice, but there is not sufficient clinical evidence covering these uses at the present time.

It is evident that many questions remain to be answered satisfactorily by the manufacturer who desires to have these products and their exploitation conform to the requirements of the Council.

Although phenylmercuric nitrate and phenylmercuric chloride seem to have great promise as germicides and as agents useful in bacterial chemotherapy, the Council's referee pointed out that the clinical studies, admittedly difficult to carry out conclusively, must afford the material on which the therapeutic efficacy of these compounds is to be determined.

The Council adopted the report of the referee to be published as a preliminary report on its consideration of phenylmercuric nitrate and phenylmercuric chloride; the Council voted further that the J. H. R. Sales Corporation be informed that its brands of phenylmercuric chloride and phenylmercuric nitrate will, unless further conflicts arise, be accepted for inclusion in N. N. R. (1) when acceptable evidence is submitted for every claim advanced, (2) when acceptable advertising and labels are received, and (3) when the A. M. A. Chemical Laboratory reports favorably on the tests, standards and other chemical questions involved.

Since the statement of the Council's consideration was sent to the J. H. R. Sales Corporation, the office of the Council's secretary has been informed that the entire patent, manufacturing and sales rights of this firm on these phenylmercuric compounds have been acquired by a new corporation in Hamilton, Ohio, organized under the laws of Delaware and named The Hamilton Laboratories, Inc.

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

LIGHT'S FAIRY QUEEN CAKE FLOUR (BLEACHED)

Manufacturer.—The Light Grain and Milling Company, Liberal, Kan.

Description.—Hard winter wheat short patent flour; bleached.

Manufacture.—Selected hard winter wheat is cleaned, scoured, tempered and milled by essentially the same procedure as described in THE JOURNAL, June 18, 1932, p. 2210. Chosen flour streams are blended and bleached with nitrogen trichloride (one-seventh ounce per barrel).

WHITE SWAN BRAND EVAPORATED MILK

Distributor.—Waples Platter Company, Fort Worth, Texas.

Packer.—The Page Milk Company, Merrill, Wis.

Description.—Canned unsweetened sterilized evaporated milk, the same as Page Brand Evaporated Milk (Sterilized, Unsweetened), THE JOURNAL, May 30, 1931, page 1872.

GOLDEN KEY WHEAT FARINA

Distributor.—The Great American Tea Company, New York.

Packer.—The Quaker Maid Company, Inc., New York.

Description.—Hard wheat "flour middlings" or farina; the same as Mello-Wheat Breakfast Food, The Heart of the Wheat (THE JOURNAL, Oct. 1, 1932, p. 1175).

FAIRWAY BRAND FREE RUNNING TABLE SALT

Distributor.—Twin City Wholesale Grocer Co., St. Paul and Minneapolis.

Packer.—Morton Salt Company, Chicago.

Description.—Table salt containing 0.7 per cent of added magnesium carbonate. Same as Morton's Free Running Salt, THE JOURNAL, May 14, 1932, page 1745.

Claims of Manufacturer.—This salt is for all table and cooking uses of salt. The added magnesium carbonate tends to preserve its free running qualities.

HEIMAN'S SPARKLING GOLDEN SYRUP

Distributor.—Heiman Grocery Co., Trenton, Mo.

Packer.—Bliss Syrup & Preserving Co., Kansas City, Mo.

Description.—A table syrup; corn syrup flavored with refiners' syrup; the same as Bliss Pancake Golden Brand Syrup (THE JOURNAL, Oct. 28, 1933, p. 1393).

ACME-EVANS COMPANY WHITE PLUME BEST PATENT FLOUR (BLEACHED)

Manufacturer.—Acme-Evans Company, Indianapolis.

Description.—Short patent cake flour milled from soft winter wheat; bleached.

Manufacture.—Selected soft winter wheat is cleaned, scoured, tempered and milled by essentially the same procedures as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended and bleached with nitrogen trichloride (one-seventh ounce per barrel).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, APRIL 14, 1934

BODY BUILD AND METABOLISM

The influence of body build has long been of concern in the design and operation of motor cars. In the performance of the human body the possible significance of peculiarities in the physique of the individual — in unusual interrelations of body size and proportion—have only lately awakened serious interest. Today the claims of constitutional differences receive a respectful hearing. A recent writer [1] has remarked that the almost uncanny agreements found in applying the surface area formulas to basal metabolism of individuals of widely different body form, widely different proportions of body fat, and so on, have served to inhibit rather than stimulate interest in the effects of minor differences.

Structural form results from processes of unequal growth. This has been well expressed by Stockard [2] in an essay on human types and growth reactions. Equal growth, he states, in all directions from the original spherical egg would result in a sphere. Spheres may differ in size, but all are alike in form. Should the growth processes be exactly the same in two specimens, their final structures will also be exactly alike. Whenever the growth processes of the two differ, the resemblance is modified. Thus the problem of human types is a problem of growth, and all individuals that may be grouped together under one type are individuals with closely similar growth histories. Stockard has further defined the consequences of unequal growth in relation to types of body build. There is a primary tendency to form an axis or line of growth. Following this, lateral growth takes place. Crudely stated, there is a tendency to attain length first and width later. Secondly, there is a certain degree of competition between these two tendencies so that as a rule the growth in width expresses itself only after the growth in length has worn itself down and become slower.

A corollary of such considerations naturally relates to unlike activities of organs, notably the thyroid, which regulate both the rate of metabolism and the rate of development. An interrelationship between physique and basal metabolic rate at once is suggested. It now seems to have been demonstrated by the recent investigations of Lucas and Pryor [3] in San Francisco, from careful measurements of nearly 600 children. Slender-built children normally have higher basal rates than broad-built children of the same age-sex group. High basal metabolic rates as measured by the conventional standards are the rule for the linear type group, whose width-length indexes of body build are well below average. The width-length index is an expression of the relationship of the width to the length of the body. It is obtained by measuring the diameter of the crest of the ilium and the standing height. The crest measurement is divided by the height to give the relative breadth of the body, or width-length index. This index represents width in percentage of standing height. Weight does not enter into the calculation. The size of the index increases with the relative breadth of the body.

It has been remarked that constitutional influences on basal metabolism may be of at least four kinds: those hereditary factors which affect body size and proportion, those which affect nervous organization, those which produce a tendency to leanness or fatness aside from the endocrine functions, and the endocrine factors themselves. The first of these, certainly, and probably others, may be traced to the chromosomes of the germ cells. No certain method is at hand of determining where chromosomal influences per se leave off and endocrine influences begin. The great varieties of body size and shape possessing perfectly normal and well balanced endocrine functions, different proportions of muscle mass, visceral mass, weight of skeleton, skin, and other connective tissue structures must produce considerable differences in the rate of basal heat production. The San Francisco study is a notable contribution to the perplexing problems of body build and metabolism.

1. White House Conference on Child Health and Protection: Growth and Development of the Child: Part III. Nutrition, New York, Century Company, 1932, p. 352.

2. Stockard, C. R.: Human Types and Growth Reactions, Am. J. Anat. **31**:261 (Jan.) 1923.

3. Lucas, W. P., and Pryor, Helen B.: The Body Build Factor in the Basal Metabolism of Children, Am. J. Dis. Child. **46**:941 (Nov.) 1933.

THE CARE OF THE PREMATURE INFANT

In the deliberations of the White House Conference on Child Health and Protection, it was pointed out [1] that the handling of premature infants is so complicated that it is hard to decide which of their problems are nutritional, environmental, infectious or due to actual congenital anomalies or birth injury. In the past, more attention has probably been devoted to the nutritional aspects of the baby's regimen than to any other features of its management. Every one is aware that the heat regulatory mechanism at the beginning of extra-

1. White House Conference on Child Health and Protection: Growth and Development of the Child: Part III. Nutrition, New York, Century Company, 1932, p. 72.

uterine life is far from adequate in most species. In the case of the premature human infant it is by no means fully developed at birth; consequently, unless the infants are kept warm by the application of external heat the body temperature gradually falls; in some instances it fails to rise again, with detrimental or fatal consequences. The inability of the premature infant to regulate and maintain a normal body temperature is attributed largely to incomplete development of the nervous system, as a result of which there is an imperfect balance between loss of heat and production of heat. Talbot [2] has observed that there is generally a lack of subcutaneous fat, which favors escape of heat from the more vital tissues of the body, the normally low production of heat by the organism itself, and the failure to increase this production by shivering, crying and other forms of exercise when the environmental temperature falls below that optimal for the child. Furthermore, the sweat glands do not function as efficiently as they do in the fully developed or "mature" new-born infant, and sometimes they do not act at all.

In view of these environmental problems, the department of pediatrics at the Harvard Medical School has been engaged for several years in attempting to improve atmospheric conditions in hospital nurseries for premature infants and in observing the effects on the growth and development of the young. Blackfan and his associates,[3] who have been responsible for this laborious undertaking, have not been indifferent to the factors other than immediate environment that are involved in the successful rearing of the premature infant. They confess at the outset that it depends primarily on four basic principles: (*a*) stabilization of body temperature, (*b*) adequate and proper nutriment, (*c*) prophylaxis against infection and (*d*) intelligent nursing and medical care. The stabilization of body temperature through accurate control of environmental conditions has been least adequately dealt with.

A special part of the November 1933 issue of the *American Journal of Diseases of Children* was devoted to detailed, technical descriptions of the "air conditioned" nursery rooms at the Infants' Hospital in Boston, where the investigations have continued for seven years. In order to reduce to a minimum those influences which would interfere with the drawing of valid conclusions, special consideration was given to keeping uniform such variables as type of subject, hygiene and clothing, nutriment, and medical and nursing care. For the purpose of securing data with which to contrast the results of the study in the conditioned nurseries, an analysis was made of the hospital records of infants treated over a period of three years in the old unconditioned nursery, before the installation of the air conditioning apparatus. Humidity has proved to be a significant feature in lowering mortality and in promoting growth. The humidity best suited to stabilizing the body temperature of premature infants appears to be about 65 per cent, with a temperature ranging from 75 to 100 F., depending to some extent on the general constitutional state of the infant and the body weight. A humidity of 30 per cent induced instability of body temperature and other untoward effects, often leading to serious consequences. The body temperature of the premature infant can be controlled much more regularly in rooms in which the temperature, humidity and ventilation rate are adequately managed than in rooms in which these physical factors are allowed to fluctuate.

A surprising outcome relates to the alimentary functions. Air conditions in general and low humidity in particular exerted a conspicuous influence in initiating symptoms referable to the digestive tract. The incidence, as estimated according to an arbitrary index, was at a minimum when the humidity was high and at a maximum when humidity was low. The Harvard studies show that when premature infants live in an environment of low humidity, particularly for a week or more at a time, clinical manifestations of disturbed bodily function are prone to develop, whereas in a relatively high humidity the incidence, severity and duration of the concomitant symptoms are reduced. Furthermore, air conditioning with high humidity notably reduced the mortality from infections, a frequent cause of death in the past. According to Blackfan, the body weight is the most important single criterion for judging the environmental requirements of premature infants. This index has been found to be more reliable than the estimated fetal age, chronological age or body length. From his studies Blackfan modestly concludes that the importance of optimal temperature, humidity and ventilation conditions in the growth and development of premature infants is demonstrable. The research is destined to affect profoundly the future management of the premature infant.

2. Talbot, F. B.; Sisson, W. R.; Moriarty, Margaret E., and Dalrymple, Alice J.: The Basal Metabolism of Prematurity: III. Metabolism Findings in Twenty-One Premature Infants, Am. J. Dis. Child. **26**: 29 (July) 1923. Talbot, F. B.; Bates, Velma; Bates, Eleanor, and Dalrymple, Alice J.: Skin Temperature of Children, ibid. **42**: 965 (Oct.) 1931.

3. Blackfan, K. D., and Yaglou, C. P.: The Premature Infant, Am. J. Dis. Child. **46**: 1175 (Nov.) 1933.

THE HUMORAL THEORY OF NERVOUS FUNCTION

The humoral theory of nervous function owes its inception largely to the ingenious investigations of the pharmacologist Prof. Otto Loewi of Graz. In 1921 he reported his conclusion that the stimulation of autonomic nerves leads to the liberation of definite chemical substances. He noted that, when the vagus nerve that supplies branches to the cardiac tissue is stimulated so that the heart stops, the fluid in the latter acquires the surprising property, when introduced into another heart, of producing typical vagal effects; that is, heart slowing or standstill. On the other hand, when the heart is stimulated under comparable conditions through

the cardio-accelerator nerves, the fluid becomes endowed with typical accelerating potencies. In other words, when certain structures, such as cardiac muscles, are stimulated by specific nerves, compounds are liberated into the surrounding medium that mimic the usual functions of the nerves involved.[1] A new view in the conception of the mechanism of nerve stimulation—the conception of chemical mediators—has thus come into vogue. Physiologists are at present busily engaged in establishing a firm foundation for this fundamentally important principle. There are fairly well founded surmises as to the nature of the potent excitatory and inhibitory principles. They seem to be related to, if they are not actually identical with, epinephrine and acetylcholine, respectively. These are substances that have at least one characteristic of many known hormones. They act in extremely minute concentrations in the body — in a few parts per million. Recently Gellhorn and Northup [2] of the College of Medicine of the University of Illinois at Chicago have endeavored to test in a somewhat new way the Loewi theory of the humoral action of nerve stimulation. These investigators devised experiments in which the intestine is perfused with isotonic dextrose and the blood vessels supplying the intestine with Ringer's solution and the perfusion rate kept constant. Under such conditions the absorption of dextrose is regularly altered by stimulation of the autonomic nerves. Administration of acetylcholine and epinephrine also induces comparable effects under suitable conditions. In fact, the outcome is exactly what one might anticipate if relatively large concentrations of acetylcholine and epinephrine are liberated after vagus and sympathetic stimulation, respectively. These results are in favor of the humoral theory of the action of autonomic nerves. Furthermore, they prove that autonomic nerves alter cellular permeability; at any rate, according to Gellhorn and Northup, assuming the validity of the humoral theory of nervous action and taking into account that the preparation used in these experiments consists chiefly of a part of the intestine and the blood vessels and nerves supplying these tissues, the effect of nervous stimulation on sugar absorption must be due to the liberation of chemical substances which alter the permeability of the intestine if present in minute concentrations. With respect to the mechanisms involved, it has been noted that changes in the inorganic ions in the perfusing fluids may alter the permeability and thus affect absorption. For example, according to Gellhorn and Skupa,[3] slight changes in the concentration of potassium chloride and calcium chloride in the artificial solutions with which the blood vessels supplying the intestine are perfused lead to changes in the permeability of the intestinal wall to dextrose. The absorption of dextrose is increased by potassium and decreased by calcium. The effects were observed even with solutions containing only 0.0075 per cent of potassium chloride and 0.001 per cent of calcium chloride. Hence the influence of organic hormones and specific ions may be interrelated in physiologic functions.

1. A discussion of the subject is presented by Cannon, W. B.: Chemical Mediators of Autonomic Nerve Impulses, Science **78**: 43 (July 21) 1933.

2. Gellhorn, Ernst, and Northup, David: The Influence of Nervous Stimulation on Absorption from the Intestine, Am. J. Physiol. **106**: 283 (Nov.) 1933.

3. Gellhorn, Ernst, and Skupa, Arthur: The K-Ca Antagonism in Regard to Absorption from the Intestine, Am. J. Physiol. **106**: 318 (Nov.) 1933.

UREA AS A FIBRIN SOLVENT

Thirty years ago it was shown by Limbourg and afterward confirmed by Ramsden [1] and others that saturated solutions of urea dissolve fibrin in vitro. Other proteolytic effects of urea were discovered later, such as its solvent action on casein [2] and its prevention of the precipitation of certain serum proteins.[3] The possibility of therapeutic use of urea as a local fibrin solvent, however, has been generally overlooked, pathologic research stressing the possibilities of preventing surgical adhesions by the use of certain proteolytic plant extractives. Menkin's [4] recent study of the in vivo fibrinolytic action of urea, therefore, offers a suggestion of clinical interest.

Menkin approached the problem of therapeutic fibrinolysis after a series of preliminary studies of the mechanical rôle of fibrin in local inflammatory reactions. He found, for example, that, within one hour after subcutaneous injection of staphylococci, physiologic encapsulation of the infected area is effective in rabbits, largely as a result of local lymphatic and interstitial fibrin blockade. Foreign proteins, dyes and particulate matter injected in the blockaded area are fixed in the local tissues and fail to drain into the tributary lymphatics. As a second preliminary, Menkin reconfirmed the long neglected observation of the solvent effects of urea in vitro. He found, for example, that exudates withdrawn from aleuronat peritonitis (rabbits) are dissolved in about fifteen minutes if mixed with two volumes of 50 per cent urea solutions Both fibrin and leukocytes are liquefied by this technic. Strips of fibrinous exudate of human origin were also dissolved, though less promptly, if suspended in concentrated urea solutions, control strips showing no tendency toward liquefaction. Added to uncoagulated peritoneal exudate, urea prevents clotting.

Applying these technics to living animals, Menkin found that from 10 to 15 cc. of 30 or 50 per cent urea solution, injected into the peritoneal cavity of a rabbit, prevents local interstitial and lymphatic fibrin blockade from simultaneously injected aleuronat. Subsequently injected graphite particles drain normally to the regional lymph nodes. In untreated control aleuronat peritonitis, the locally injected graphite particles are

1. Ramsden, W. B.: J. Physiol. **28**: xxiii, 1902.

2. Burk, N. F., and Greenberg, D. M.: Proc. Soc. Exper. Biol. & Med. **25**: 271 (Jan.) 1928.

3. Shear, M. J., and Offner, M. M.: J. Biol. Chem. **91**: 291 (April) 1931.

4. Menkin, Valy: J. Exper. Med. **56**: 157 (Aug.) 1932.

fixed in the peritoneal tissues. Applying similar tests to previously established peritoneal blockade, the Boston pathologists found that a single local urea injection is an effective solvent of this blockade, subsequently injected graphite particles draining normally from this inflamed peritoneum. Local prevention of fibrin formation and local therapeutic resolution of previously established fibrinous blockades are also effective in subcutaneous tissues.

Whether or not concentrated urea solutions would be lytically effective if applied as surgical dressings to ulcerative surfaces, however, has not yet been determined. Nor, as yet, have the presumptive secondary toxic reactions from therapeutic fibrinolysis been studied. Menkin's only reference to toxicity is one sentence: "Out of a large series of experimental animals, a few died several hours after intraperitoneal injection of 50 per cent urea."

Current Comment

THE BACTERICIDAL ACTION OF KETONIC URINE

A somewhat new possibility in the management of pyelitis was inaugurated through the application of the ketogenic diet to control the objectionable bacteria in the urine. The colon bacillus is the most frequent cause of infection of the urinary bladder and pelvis of the kidney. The plan of treatment originated with Helmholz and his collaborators[1] at the Mayo Clinic. Fuller,[2] of Queen Charlotte's Hospital, London, has pointed out that, provided a sufficiently intense ketosis can be obtained, the bacteria and pus often disappear from the urine within a few days, even in chronic cases. At first it was thought possible that the increased acidity alone caused the sterilization, but it soon became evident that there was another factor; for Helmholz and Clark succeeded in producing sterile urines at p_H 5.5 by means of the ketogenic diet in cases in which the use of acidifying salts yielding a urine of p_H 5.0 had been without effect. This was shown also by experiments on the bactericidal properties of the urines in vitro at 37 C. Helmholz demonstrated that acidity alone, or in combination with 0.5 per cent of acetoacetic acid, was not responsible for the bactericidal effect of ketonic urine and concluded that some other bactericidal substance was present. Dick[3] obtained similar results showing that, while normal urine at p_H 5.5 allowed a free outgrowth of Bacillus coli, ketonic urines at this reaction were bacteriostatic; that is, they prevented an increase in the numbers of bacteria without necessarily killing them completely. A solution of the problem of the bactericidal or at least the bacteriostatic potency of the urine in ketosis seems to have been reached by Fuller, who observed that, in those cases in which a rapid cure was obtained, the urine had a pronounced bacteriostatic action in vitro and contained a high concentration of acetoacetic acid; but this is inadequate to account for the striking therapeutic effects. The principal factor inhibiting the growth of bacteria in the urine from patients receiving the ketogenic diet is *l*-β-hydroxybutyric acid. The activity of this substance increases in proportion to the acidity of the urine. Acetoacetic acid and acetone, according to Fuller, are much weaker in their action than β-hydroxybutyric acid and, since they are present in ketonic urine to a much smaller extent than the latter acid, they contribute only a small portion of the total activity.

1. Helmholz, H. F., and Clark, A. L.: Proc. Staff Meet., Mayo Clin. **6**: 605, 609, 1931. Clark, A. L.: Bacilluria Under Ketogenic Treatment, J. A. M. A. **98**: 1710 (May 14) 1932.
2. Fuller, A. T.: The Nature of the Bactericidal Substance in the Urine of Patients Receiving a Ketogenic Diet, Biochem. J. **27**: 976, 1933.
3. Dick: Proc. Roy. Soc. Med. **26**: 227, 1933.

Association News

MEDICAL BROADCASTS

National Broadcasting Company

The American Medical Association broadcasts on a coast to coast network each Monday afternoon from 4 to 4:15 Central standard time (5 o'clock Eastern standard time, 3 o'clock Mountain standard time, and 2 o'clock Pacific standard time). The next three broadcasts will be as follows:

April 16. Bird with a White Breast, W. W. Bauer, M.D.
April 23. Sanitation Goes Modern, W. W. Bauer, M.D.
April 30. Science Saves Babies, Morris Fishbein, M.D.

Columbia Broadcasting System

The Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45 Central standard time. The next three broadcasts will be as follows:

April 19. More Health Delusions, W. W. Bauer, M.D.
April 26. Million-Murdering Death, W. W. Bauer, M.D.
May 3. Facts or Fallacies, W. W. Bauer, M.D.

ANNUAL CONGRESS ON MEDICAL EDUCATION, LICENSURE AND HOSPITALS

Thirtieth Annual Meeting, held in Chicago, Feb. 12 and 13, 1934

(Continued from page 1163)

DR. REGINALD FITZ, Boston, in the Chair

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The Importance of Introducing Psychiatry into the General Internship

DR. FRANKLIN G. EBAUGH, Denver: This article appeared in full in THE JOURNAL, March 31, page 982.

DISCUSSION

DR. C. C. BURLINGAME, Hartford, Conn.: I believe that the other branches of medicine do not know what is going on in psychiatry today. They think of psychiatrists still as metaphysicians who are dealing with things entirely detached from the other branches of medicine. As a matter of fact, in the present-day psychiatric hospital the best in physical medicine is practiced. When the good general hospitals are as well equipped in mental medicine and psychiatry as the good psychiatric hospitals are equipped in physical medicine, they will both be a good deal further along. In every surgical and medical and pediatric service there are psychiatric problems. It is somebody's job to recognize them. The rather casual way in which the intern in a service in which a suicide occurred took that matter would lead one to believe that every intern is entitled to a certain amount of fundamental knowledge of psychiatry. How are they going to get this training? There are some state hospitals that would be a splendid place to offer psychiatric

training. But there are some state hospitals where the custodial type of psychiatry still obtains. Modern psychiatry is not synonymous with the care of cases of psychosis or insanity. A large part antedates any frank breakdown. Psychiatry is suffering from its ancestors. They came from poorhouses and jails, instead of coming from medical schools and general hospitals. If we can only forget our ancestry in psychiatry, and think of ourselves in terms of general medicine, surgery and pediatrics, a lot of our old traditions will drop from us. The leadership is going to come from that type of thinking, and it is our responsibility to furnish that leadership through the general internship and from there on.

DR. C. W. M. POYNTER, Omaha: It seems to me that if it can be instilled in the mind of the intern to begin with that even a thing as simple as a fracture of a leg contains a functional element, and if that can be made to permeate the staff of the institution, they will realize the function of the organic. If we are to move forward with this program of mental hygiene and the problem of the psychologic mind, it will be necessary to introduce that thing all along the line. The man will come out impregnated with the idea that he cannot deal adequately with any case if he is not aware of its sociological ramifications.

DR. A. S. BEGG, Boston: We have attempted in Boston University to emphasize the functional side all the way through. We have felt that there is something that is to be known as common sense in medicine, and we have been trying to develop that in our students. We begin in the first year with the course in anatomy of the nervous system. We proceed in the latter part of the first year with the work in physiology, which has a functional bearing on the nervous system. We then go into the second year, where the courses in neuropathology and the beginnings of psychiatry are laid down. We next have a course in formal lectures in psychiatry, with demonstrations, and following that we have the experiment that Dr. Ebaugh has referred to of sending our students to state hospitals for a residency of four weeks. The way we got this was to add four weeks of training to the senior year, so that our senior students have thirty-six instead of thirty-two weeks. So far we have had nothing but commendation for the change.

DR. E. S. RYERSON, Toronto: At the University of Toronto as the result of the attitude toward psychiatry, it was decided two years ago to make psychology a compulsory study in the second year, and there is now a compulsory course of sixty hours, with lectures in psychology, for all medical students. It is obligatory for everybody. It is on the same standing as anatomy and physiology, not a minor subject. When a student has completed that course he has an opportunity in his third year of going into a more restricted class of psychology in a laboratory form of teaching. In the fourth year there is a still further elective course over and above the courses which begin at that time in psychiatry, spoken of as abnormal psychiatry. In the fifth year the men who have taken that course take an elective course in psychiatry itself, along with the clinical course in psychology. As the result, we feel that the students are getting the point of view which Dr. Ebaugh has pointed out. We have fully recognized this point of view of the importance not only of psychiatry but also of psychology in the training of men who are going out into the general practice of medicine, and at the same time are carrying on along with that a more adequate training for men who are thinking of going into psychiatry. This is the only course in which a student can begin to specialize before he graduates. He cannot take an elective in any of the clinical subjects during his undergraduate course other than psychology.

The Incorporation of the Principles of Preventive Medicine in Clinical Teaching

DR. WILSON G. SMILLIE, Boston: In the consideration of every disease entity there are three facets which transmit and reflect the brilliance of clinical analysis: diagnosis, treatment and prevention. The student must know all three if he is to secure a true picture of disease as it is related to the social and economic structure of society. The importance of a consideration of this subject at this particular time is patent. While various, almost revolutionary, social changes have been going on, the relationship of the practitioner of medicine to the community has not changed fundamentally during the past fifty years. There is some evidence that the organized medical profession has not been alert to changing public sentiment in regard to medical practice. One bit of evidence is the widening breach of misunderstanding in many parts of the nation between the official health departments and the medical profession. These two groups should have a common interest and should be working toward the same ultimate goal. Their chief difference is in point of view and method of approach. The health officer's primary interest is promotion of the health of the community as a collective unit; the primary interest of the physician is the promotion of the health and welfare of the individuals of that unit.

In recent years, official health departments have established immunization clinics for smallpox, typhoid, scarlet fever, measles and tuberculosis. Diagnostic and treatment clinics have been established for tuberculosis and for venereal disease, as well as child hygiene clinics, well baby clinics, dental clinics, tonsil and adenoid clinics, eye clinics and clinics for periodic physical examinations. All these essentially clinical activities are, in theory at least, the province of the private practitioner, rather than the health department. It is generally agreed, of course, that these services should be rendered by public or quasipublic organizations for those in the community who are too poor to pay for these necessary services. But then these services become a matter of public welfare, rather than a public health function. The intelligent health officer realizes his position, and will, I believe, turn these clinical activities back to the physicians as rapidly as they will assume responsibility for them; but he must have due assurance that the work will be carried out speedily and efficiently, and at reasonable cost.

I feel that I state the convictions of the intelligent, foresighted health officials in the proposition that the clinical aspects of preventive medicine should be the function of the private practitioners of the community. The Commission on Medical Education, 1930, stresses this feeling, as follows: "Emphasis must be kept constantly upon the fact that only through a sufficient number of properly trained physicians can a community expect to meet its responsibility for the care and prevention of illness and the protection of health. There is no substitute for this essential feature." The Commission on Medical Education states, further: "Present methods of [medical] training in some places are those of a generation ago. The present curricula in some schools are hampered by a largely useless burden of traditional subject matter and ought to be reorganized. There should be a diffusion throughout the preparation of physicians, and especially the clinical department, of the social and preventage aspects of modern medicine. . . . The medical graduate unfamiliar with the newer conditions of practice is at a great disadvantage."

At Harvard University, in addition to formal courses, the student absorbs the preventive point of view through unconscious practice of it. The health service for the students is organized on a base similar to a health department of a community. There is a small faculty committee which has supervision of the environmental sanitation of the school, the recreational facilities of the students and the preventive and clinical activities that are planned for the direct benefit of the student body. Each student is given a complete annual physical examination, and facilities are provided for the correction of any defects that may be discovered. The upper classmen examine one another, under the supervision of Dr. Fitz. Special attention is directed to the early diagnosis of pulmonary tuberculosis. Each first year student is given a Mantoux test and roentgen examination of the chest on entrance to the school. The same procedures are carried out with each fourth year student as he leaves the school to begin his internship. Each student is given an opportunity to perform and interpret the various specific immunity tests and immunization procedures, the Shick test, the Pirquet and Mantoux tests, the Dick test, smallpox, diphtheria and typhoid immunization, the use of convalescent serum in measles and scarlet fever, and so on.

I hope that I have not given the impression that we believe that the methods we have employed in training our own students in preventive medicine are highly satisfactory to us.

This is far from the case. I can only justify myself in presenting our own methods by returning to the final report of the Commission on Medical Education. It says: "The training of students adequately to meet the new philosophy of medical responsibility can only be brought about through a shift in the interests and the point of view of those in charge of medical education who must be convinced of the vital importance of these new influences. This cannot be brought about merely by adding new courses or supplementing existing efforts to call attention to these problems, but only by the awakening of an interest and a stimulation of a fresh viewpoint in the faculties."

DISCUSSION

DR. C. SIDNEY BURWELL, Nashville, Tenn.: If the desirability of infiltrating clinical teaching with the principles of preventive medicine is granted, how are clinical teachers to do it? I am not a strong advocate of setting aside exercises and labeling them "preventive medicine." I prefer to utilize in the practice of medicine the principles of preventive medicine. This type of program may be emphasized in various ways, most of them obvious; but because I have been asked to mention them, here they are: 1. The care of patients with infectious disease in the teaching hospital should be an example of methods of isolation. The care of patients with infectious or other diseases with public health relationships in the hospital or teaching clinics should be examples of cooperation with local health authorities. 2. The students' health service should be a demonstration of the point of view and methods of preventive medicine. 3. Routines, such as the history outlines in the hospital, should give due emphasis to environmental factors such as occupation, diet, exposure to infection, and the various prophylactic procedures such as vaccination. 4. To demonstrate the management of disease problems usually requires some method of following up patients after they have left the hospital. In the weekly medical clinic for the third and fourth year classes, periodic "round ups" are held, at which patients previously seen are reviewed. The clinical clerks discuss not only the evolution of the disease process and the influence of treatment but particularly the social implications and public health relationships. 5. Joint teaching clinics in which representatives from the department of preventive medicine may join with the clinical teachers constitute another example of that cooperation between the departments of preventive medicine and the clinical departments. The thing which I believe to be very important is to set in the medical service of the university hospital an example of the practice of preventive medicine and to exhibit an enlightened view with regard to the position of preventive methods in modern medicine. These observations apply as well to the teaching of interns as to the teaching of undergraduate students.

DR. ALLEN GREGG, New York: The effectiveness of the public health worker of preventive medicine is directly related to the thoroughness of knowledge that exists about disease. If one goes over the fields in which public health has been particularly successful in various countries, it will be found that prevention of disease has been most effective in those instances in which the etiology of the disease and its handling, its management, are most clearly known. If a physician really knows a disease, knows its exact etiology, there is not much excuse for waiting until the disease has established itself and then being called in. I do not have very brilliant hopes at present of what can be done in the way of preventive medicine in diseases about which relatively little is known. Isn't it better to leave those diseases to the care of those who are still students of them, who are willing to do what they can, but not to assume a rather magistral attitude that the preventive position is the only one that can be taken? The real axis around which this discussion revolves seem to me to be a thorough knowledge of disease. It is in direct proportion to our thorough knowledge of disease that the public health man will be effective in his measures against it. For the diseases for whose ignorance we are not to be held entirely responsible, the better attitude is to say that we do not know our way completely but will do the best we can. Let the people choose their physicians to take care of them in these diseases in which every one is still, relatively speaking, in the dark, and save the position of preventive medicine from criticism. I have seen many examples in many countries of extreme fervor to get something done from the public health angle, being done on a basis of knowledge which experience showed to be inadequate, and the upshot of all of that is a certain amount of discredit. Honestly, do we know that what we advocate as a preventive measure is actually sufficient, or are we simply eager to have as much done as possible and willing to pontificate beyond our actual knowledge? It is precisely in relation to the accumulation of solid, provable, indisputable knowledge about diseases that the field will be opened up to a kind of preventive attitude against which no one will take exception.

The Function of the Physician in Public Health Education

DR. W. W. BAUER, Chicago: The medical activity of today, looking toward instruction of the public, is merely a reawakening and not an initial incursion into a new field. The doctor has been a health educator ever since there were doctors, at least until the time when changes in medical practice began to crowd the family doctor out of the picture in favor of the specialist. The family doctor felt it his duty to instruct his patients about such matters as smallpox vaccination and other necessary steps to preserve their health. His relationship was informal but effective. Even in the face of official endorsement of the periodic health examination by a number of organizations there are many who hold that the less formal but more intimate relations between the family doctor and his patients were more desirable and effective than are the practices that are advocated today.

The public has awakened to a keen curiosity about its health. This curiosity is mainly misdirected. There is no lack of interested persons busily engaged in misleading the public interest in health for private profit. The influences apparent today in magazines, on billboards, in newspapers and by way of the radio, constitute, in my judgment, the plainest handwriting that has ever been written admonishing the physician that he must function as a health educator if he is to save the public from the fruits of its own folly and if he is to retain or regain leadership among guardians of the health of the people.

There has grown up a group who call themselves health educators. It includes doctors who find themselves better fitted for participation in group endeavors, teachers, social workers and public-spirited individuals with a genuine urge for service. It attracts philanthropists with more money than judgment and it offers a rare opportunity for activity to busybodies who have no genuine occupation. It is the least qualified of these groups who make the most noise.

One great weakness of mass educational movements is that they tend to become blatant for the sake of attracting attention. Mass movements in health education, as in politics or any other field, tend to attract to themselves the cranks and those with an ax to grind. There are physicians who consider that all educational activities should be abandoned because misunderstanding may arise and neurasthenic tendencies may be favored by free dissemination of information. The profits from well conceived educational activities include a better appreciation of medical science, better understanding of difficulties involved in diagnosis and treatment, more skepticism about quackery and charlatanism, greater and more constructive interest in medical progress and scientific research, and livelier appreciation of hygiene, diet and medical supervision in health. The doctor may properly display an unselfish interest in furthering the accumulation of these profits because they are in the interests of the public health.

The material that is being offered the public by the medical profession is educational. It is not primarily in the interest of the doctor but in the interest of the patient. There is no more reason why the medical profession should pay newspapers and radio for the dissemination of health information than there is for mathematicians to pay for the teaching of arithmetic in the public schools. The radio is being used extensively by organized medicine. The American Medical Association broadcasts weekly over a coast to coast network. At least seventy state, district and county medical societies broadcast on regular weekly schedules with material furnished by the Bureau of

Health and Public Instruction of the American Medical Association, and others are developing their own material. In addition, there are medical societies which broadcast occasionally. It may be assumed that from 125 to 150 county medical societies are using the radio, so that there is scarcely a radio set which is not within range of an educational program sponsored by organized medicine.

News releases have been extensively employed by public health organizations. Voluntary health agencies have also used the newspaper release technic. So also have medical societies in a number of states. Some of these services are gratis to the press, but there is at least one which is sold to newspapers. County medical societies are employing news releases in a number of instances, getting their material from the monthly clip-sheet of *Hygeia*, the health magazine, which is available to any component or constituent society on request. Speakers' bureaus are commonly organized by state medical societies and in counties that contain larger cities. In the more remote areas where there is no great supply of speakers for meetings of lay groups, medical societies could render a definite service by organizing speakers' bureaus and letting it be known that their members will address lay groups on subjects of interest to their health. It seems reasonable to suggest that state and county medical societies might properly take an interest in seeing that the right kind of reading is available to lay inquirers about health topics. All that should be attempted is to be sure that medical literature of a kind which meets with the approval of the profession is not denied a fair place among the books purchased by a community library. To the extent that the play, the exhibit and the pageant can be used without sacrificing dignity, they must be utilized.

Medical activity in health education is on the increase. To the extent that the resources of the Bureau of Health and Public Instruction permit, we are happy to cooperate with the local medical profession in furthering public instruction for better health.

DISCUSSION

DR. H. S. CUMMING, Washington, D. C.: I am inclined to think that from a quantitative standpoint there is entirely too much education on medical matters going on over the radio. If the quality could be improved and the quantity decreased, it would help. The public health administrator realizes that there are certain things which public health authorities must do for the body politic, that there are certain things which the physician must do for the public, that there are certain things which the citizenship must do for itself, and that there are certain things which can be done only through the cooperation of the citizen, the public health authorities and the physicians. If the general public is not informed as to the need for personal and public hygiene and sanitation, it is extremely difficult to secure interest in these matters. These facts have made it increasingly apparent that, unless public health education is brought to the general public, the greatest good cannot be attained. As a result there has been devoted more and more time to public health education among the general population. In some instances this has been carried to a high degree of excellence. In others the results have not been so satisfactory. During a serious epidemic, when everybody wants to know what steps must be taken to stamp out the scourge, the opportunity for public health education is easy. The good obtained in this way is likely to be temporary; it cannot be relied on to produce lasting results. It has been wisely said that "a mere increase in knowledge is not enough to safeguard health and prevent disease; the knowledge must be understood, accepted, and practiced by the people." Public health work can never be efficient until the general public understands the end in view; for what the public does not understand, it will carry on irregularly, inadequately or not at all. It has long been realized that the public health of a community depends on the personal health of the individuals composing that community. The practicing physician is the one who comes in the most intimate contact with the personal health of the community, and to him is given the unusual opportunity for effective public health education. Often physicians do not take full advantage of the opportunity afforded them for health education in their own private practice. The Public Health Service is in receipt of hundreds of letters asking questions that give evidence that the family physician was not interrogated or that if the query was presented to him he gave a hurried or evasive reply. It is felt that the physician in active practice should endeavor to take the time to answer as well as he can the various questions that arise regarding the illness of individuals. A sense of personal responsibility toward the public health is one of the qualities of individual citizenship which must be developed and fostered by every means at our command. It is this sense of personal initiative and responsibility and the ability of the individual to think and act for himself which is one of the basic elements of greatness of the American nation. To give information on any subject to every one in a community is a tremendous task and one that can never be finished. The magnitude of such a task should be a challenge to the physicians and public health administrators of the nation to develop a plan whereby each community may feel a sense of responsibility for the important task of health education. There must be some leadership in health education in each community, and it would appear logical that the physicians should combine forces with the public health authorities of the several communities to take the lead in this important work. It is important today to offset the subversive influence of the increasing amount of questionable and actually harmful so-called health education; and practicing physicians and official health organizations should ally themselves in their efforts to provide the best and the soundest knowledge that can be given in health education. It is desired to emphasize particularly one point brought out, and that is the importance of seeing that libraries are provided with the proper material dealing with health information. The public health education that has been carried on so far has been the means of stimulating great interest of the general public in health matters. This interest should be met by providing suitable books and reference material on these subjects, which will give the information desired in the proper form.

The Teaching of Industrial Hygiene

DR. LEVERETT D. BRISTOL, New York: This paper was published in full in THE JOURNAL, March 31, page 990.

DISCUSSION

DR. EDWARD C. HOLMBLAD, Chicago: I think that the teaching of this subject is important in the medical field because it should be in the hands of medical people to carry out industrial hygiene. Another is a point of view of the experience. Dr. Bristol's experience has been in medical and public health work. Mine has been more in the treatment of these situations. With his program of industrial hygiene I notice that he places the treatment of injuries in occupational disease down as a poor third. I would put the treatment of injuries in occupational disease and the treatment of occupational disease a little higher on the list. I should like to see it close in rank and position. I think that its treatment is important.

DR. REGINALD FITZ, Boston: I wish that Dr. Bristol had spoken about the history of industrial hygiene in this country, because, being a Bostonian, I think that it started there. Two hundred and ten years ago, rum was distilled through lead pipes, and it was discovered that people had belly-ache and wrist-drop and weakness of the ankles from drinking it. A law was passed that henceward it should be forbidden to distil it through lead pipes or worms. I think that was the first law with regard to that in this country. I think that being a physician to the medical students of Harvard College makes me an industrial hygienist. I think those boys are engaged in an industry, and I think it is in the medical school that they have a chance to learn something about industrial hygiene. Dr. Bristol's figures interested me because the one illness we have more than anything else is the same as his, the common cold. The thing I should like to have him work out would be some method by which we could see if he and those of us who are struggling to teach in medical schools are not dealing with the same problem. Everything he has to say, I think, deals with the medical student's health, preventing colds, preventing tuberculosis. We have epidemics interfering with their work as students, entirely analogous to what he sees in the industry he works for.

(To be continued)

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Lectureship in Honor of Physician.—The Gaston J. Greil Memorial Lecture was recently created by the Montgomery County Medical Society in honor of the late Dr. Greil, a past president of the society. Dr. Marvin F. Haygood, superintendent of the State Tuberculosis Sanatorium at Alto, delivered the first lecture, March 22, on tuberculosis. Dr. Greil, who died in 1932, established the old Anti-Tuberculosis League in 1908, according to the Montgomery *Advertiser*.

CALIFORNIA

Dr. Dunshee Named State Health Officer.—Dr. Jay D. Dunshee, health officer of Pasadena, has been appointed state health director, succeeding Dr. Giles S. Porter, effective April 1, newspapers announced. Dr. Dunshee, who is 52 years of age, graduated at the State University of Iowa College of Medicine in 1908. He has been health officer of Pasadena since 1929 and was recently elected president of the Southern California Health Association for 1934. Prior to his appointment in the Pasadena health department, Dr. Dunshee was for seven years director of the division of child hygiene of the Los Angeles Health Department. Charles W. Arthur, bacteriologist, will serve as acting health officer of Pasadena.

Society News.—Dr. Nathaniel Austin Cary, Oakland, among others, addressed the Alameda County Medical Association, March 19, on the postfebrile care of the poliomyelitis patient.——Dr. Langley Porter, San Francisco, spoke before the San Joaquin County Medical Society, March 1, on "The University of California Medical School and the Practitioner."——The Solano County Medical Society was addressed in Vallejo, March 13, by Drs. Sylvan L. Haas and Hans Lisser, San Francisco, on "Surgical Aspects of Poliomyelitis" and "Endocrine Disturbances of the Pituitary Gland," respectively.——Speakers before the Medical Society of Veterans' Administration Facility, Palo Alto, March 21, were Drs. William Kerr and William E. Carter, San Francisco, on "Circulation and the Conduction System of the Heart" and "The University Medical School and the Practitioner of Medicine," respectively. The physicians are associated with the University of California School of Medicine and Hospital, respectively.——At a meeting of the Galen Club in San Diego, March 5, Drs. William C. Cooke and John C. Schlappi discussed "Etiology and Prevention of Heart Disease" and "Management of Heart Failure," respectively.

DISTRICT OF COLUMBIA

Medical Bills in Congress.—*Bills Introduced:* S. 3259, introduced by Senator King, Utah, proposes to abolish the office of coroner and to establish the office of medical examiner for the District of Columbia. H. R. 8935, introduced (by request) by Representative Norton, New Jersey, provides for the prevention of blindness in infants born in the District of Columbia.

Appointments at Georgetown University.—Recent appointments to the faculty of Georgetown University School of Medicine, Washington, include the following:

Dr. Laszlo D. Detre, formerly director of the Hungarian Serum Institute, special lecturer in immunology, effective February 1.

Dr. John R. Schenken, formerly of the State University of Iowa College of Medicine, Iowa City, instructor in pathology, effective February 5.

Dr. Philip Lewis Gray, formerly of the University of Texas School of Medicine and recently engaged in private practice, associate professor of pharmacology, effective February 15.

Dr. William F. R. Phillips, formerly of the Medical College of the State of South Carolina, visiting professor of anatomy, effective February 1.

Joseph L. Schwind, Ph.D., formerly of Cornell University College of Medicine, New York, associate professor of anatomy, effective July 1.

FLORIDA

Society News.—Dr. James Ralston Wells, Daytona Beach, among others, spoke before the Volusia County Medical Society, February 13, on carcinoma of the breast.——At a meeting of the Dade County Medical Society, March 2, the speakers were Drs. Arnold H. Kegel, Chicago, on angina pectoris relieved by total thyroidectomy, and Elmo D. French, Miami, dermatology with special reference to the new-born.

Bogus Representative of Board of Health.—A racket perpetrated by a so-called representative of the state board of health is described in recent newspapers. Visiting rural towns, this man's method is to question residents, obtain specimens and prescribe, for which service he charges a fee. He gives his address at the state board's laboratory in Tampa, but requests his "patients" not to call him there, since he is in the city only long enough to sleep. His day hours are devoted to treating people, he claims. Any one encountering this impostor should communicate with the state board of health.

ILLINOIS

Personal.—More than forty physicians gave a dinner party, March 11, to observe the seventy-second birthday of Dr. Edward C. Zoll, Elmwood. A birthday book was presented to Dr. Zoll, containing the names of all those in attendance.

Error in Index.—A news item about E. H. Bernard, who was found guilty of the illegal practice of medicine in February, was indexed in THE JOURNAL, April 7, page 2, as follows: "Kuflewski, S. J., found guilty." As chief inspector of the Department of Registration and Education of the State of Illinois, Mr. Kuflewski reported the case to THE JOURNAL and his name was inadvertently inserted in the index instead of that of the illegal practitioner.

Society News.—Dr. Edwin W. Hirsch, Chicago, addressed the Will-Grundy County Medical Society at Joliet, March 28, on "Treatment of Gonorrhea."——Dr. Philip H. Kreuscher conducted a clinic for crippled children at Sterling, March 29, under the auspices of the Sterling Gyro Club and Whiteside County Medical Society.——Dr. Rollin T. Woodyatt, Chicago, discussed "Water Metabolism and Maintaining the Water Balance" before the Springfield Medical Club, March 20.——At a meeting of the St. Joseph County Medical Society, March 21, Dr. Thurman B. Rice, Indianapolis, spoke on "Local Immunization, Including Antivirus and Bacteriophage Therapy."——Dr. Willis D. Gatch, Indianapolis, addressed the Randolph County Medical Society, March 12, on "The Principles of Surgery."

Chicago

Cancer Meeting.—Dr. Fielding O. Lewis, professor of laryngology, Jefferson Medical College, Philadelphia, will be the guest speaker in a symposium on carcinoma of the larynx before the Chicago Medical Society, April 18, in the Medical and Dental Arts Building. His subject will be laryngectomy, demonstrated with moving pictures. Other speakers and their subjects will be Drs. James T. Case and Max Cutler on irradiation, and Samuel Salinger, laryngofissure. A dinner and reception will precede the meeting.

Society News.—Dr. Jack D. Kirshbaum, among others, spoke before the Chicago Pathological Society, April 9, on "Intestinal Obstruction by Sequestrated Lipoma of the Jejunum."——Among the speakers before the Chicago Laryngological and Otological Society, April 9, was Dr. John A. Cavanaugh on "Mucocele of the Frontal Sinus."——At a meeting of the Chicago Roentgen Society, April 12, papers were presented by Drs. Byrl R. Kirklin, Rochester, Minn., and Sidney A. Portis, on "Differential Diagnosis Between Benign and Malignant Ulcerating Lesions of the Stomach" and "Medical Aspects of Benign and Malignant Lesions of the Stomach, respectively."——At a joint meeting of the Institute of Traumatic Surgery and the Chicago Orthopedic Club, April 13, Drs. Dallas B. Phemister and Fremont A. Chandler spoke on "Primary Shock Produced by Wounds and Operations" and "Problems in the Pathology of the Hip Joint in Children."——Speakers before the Chicago Ophthalmological Society, April 16, will include Drs. Isidore Finkelman and Samuel Wick, Elgin, Ill., on "Pressure on the Optic Nerve by a Carcinoma of the Maxillary Sinus Extending into the Cranial Cavity."——The Chicago Society of Allergy will be addressed, April 16, by Drs. Eugene F. Traut on "Reactions of Nonarthritic and Arthritic Persons to Bacterial Filtrates" and Theodore Cornbleet and Morris A. Kaplan on "Proteose Studies in Eczema."

INDIANA

Personal.—E. Mead Johnson, aged 81, president of the Mead Johnson Company in Evansville, manufacturers of medical supplies and baby foods, died suddenly, March 2, of heart disease at Miami Beach, Fla.——Dr. and Mrs. Malachi R. French, Evansville, celebrated their golden wedding anniversary, March 4.——Dr. John I. Mitchell, Salem, has been made health officer for Washington County, succeeding the late Dr. Samuel A. Roberts.

Rat Eradication Program.—Plans were formulated, March 10, for a rat eradication campaign to be carried on in Indiana, according to the state board of health. Members of the state board of health, the Indianapolis Health Department, Purdue University and the U. S. Department of Agriculture met with a representative of the governor's commission to undertake the organization of a systematic campaign.

Dental Meeting.—Dr. Morris Fishbein, editor of THE JOURNAL, addressed the eighteenth annual meeting of the Isaac Knapp District Dental Society in Fort Wayne, March 27. Other speakers included Glenn J. Pell, D.D.S., Indianapolis, on "Oral Surgery, Extraction and Impactions for the General Practitioner," and Elbert C. Pendleton, D.D.S., Chicago, on "Biological Aspects of Denture Retention." Ezra E. Voyles, D.D.S., president, Indiana State Dental Association, also spoke.

IOWA

Tilton Jailed.—Lester J. Tilton, Clinton, began serving a term of thirty days in the Scott County jail, March 22, for nonpayment of a fine of $1,000 imposed in federal court at Des Moines, for violation of the federal Food and Drugs Act (THE JOURNAL, Dec. 16, 1933, p. 1974). According to the Chicago *Tribune*, Tilton must sign a pauper's oath to gain his freedom at the end of a month.

Society News.—Dr. Joseph C. Ohlmacher, Vermilion, S. D., addressed the Des Moines Academy of Medicine and Polk County Medical Society, March 27, on "Functional Basis of Certain Kidney Disorders with a Brief Consideration of the More Important Kidney Lesions." Dr. William P. Wherry, Omaha, addressed the section on ophthalmology, April 13, on "Practical Applications of Newer Research in Chronic Sinusitis."——Diseases of the respiratory tract were discussed by Drs. Daniel J. Glomset, Joseph B. Priestley and James A. Downing, all of Des Moines, before the Hardin County Medical Society in Eldora, March 20.——Dr. Solon Marx White, Minneapolis, addressed the Cerro Gordo County Medical Society, March 20, on "Heart Disease Among Elderly People."——Dr. Gerald V. Caughlan, Council Bluffs, among others, addressed the Pottawattamie County Medical Society, March 20, on "Management of Prostatic Obstruction."

LOUISIANA

Society News.—At a meeting of the Fourth District Medical Society in Shreveport, March 6, the speakers included Drs. William Battle Malone, Memphis, on "Surgical Diseases of the Spleen," and George R. Herrmann, Galveston, Texas, "Peripheral Vascular Diseases."——At a recent meeting of the East and West Feliciana Bi-Parish Medical Society, Drs. Oscar W. Bethea and Paul T. Talbot spoke on physical diagnosis and arthritis, respectively.——Speakers before the Claiborne Parish Medical Society, February 8, were Drs. J. W. Cox on the control of cancer; Carl O. Wolff, Haynesville, cancer of the breast and uterus, and Clifford P. Rutledge, Shreveport, x-rays and radium in the treatment of cancer.——Speakers before the Orleans Parish Medical Society, February 26, were Drs. Allan C. Eustis on "Physiologic Preventive Medicine"; Joseph Hume, "A Consideration of Urinary Stone," and James W. Warren, "Complete Prolapse of the Rectum, Treated by Office Methods."——Dr. Everett D. Plass, Iowa City, addressed a joint meeting of the New Orleans Gynecological and Obstetrical Society and the Orleans Parish Medical Society, February 19, on "Gestational Polyneuritis."

MASSACHUSETTS

Rockefeller Gift Provides Psychiatric Clinic.—The establishment and maintenance of a psychiatric unit at the Massachusetts General Hospital, Boston, is now in prospect through a recent gift of $80,000 by the Rockefeller Foundation. Of this sum, $42,000 will go to Harvard Medical School for psychiatric work and the remainder will be available for the establishment of the clinic, the construction of which will begin in September. Dr. Stanley Cobb, Bullard professor of neuropathology at Harvard, will direct the project. Mental diseases in the early stages, as they appear in medical wards and in outpatient departments, will be studied in the new unit, and a small ward will be available for special treatment of incipient cases. Close cooperation will be established with McLean Hospital, Belmont, which has recently been reorganized, for the treatment of the more difficult cases. Simultaneously with this announcement comes the report of the appointment of Dr. Tracy Jackson Putnam as the first incumbent of a newly created chair of neurology at Harvard Medical School. He has also been appointed by the trustees of the Boston City Hospital to take charge of the laboratories of its neurologic unit. A recent development at the hospital, this unit includes two wards for neurologic and neurosurgical patients and laboratories for the careful study of these patients and for research. Dr. Putnam graduated from Harvard in 1920. According to the *New England Journal of Medicine*, these changes are part of a coordinated plan in the medical school to bring into the department of diseases of the nervous system opportunities to study all kinds of mental and organic nervous diseases. Investigators from Harvard have been engaged in research at the Boston Psychopathic Hospital under the direction of Dr. Charles Macfie Campbell, professor of psychiatry, and Dr. Harry C. Solomon, assistant professor of psychiatry.

MINNESOTA

Illegal Practitioner Fined.—Mrs. Christine Nelson, Minneapolis, pleaded guilty to a charge of practicing medicine without a license, February 26, and was sentenced to pay a fine of $250 or serve six months in the Minneapolis workhouse. The sentence was stayed for one year on condition that Mrs. Nelson refrain from practicing medicine. Mrs. Nelson had been treating a Minneapolis woman for cancer of the breast for about two years and a half, during which time she had collected $310, it is reported. The treatment consisted of the application of a salve followed by the application of a flaxseed poultice causing a sloughing of the involved area. The patient's condition became worse and it was necessary to call in a physician, who operated in November 1933. On her card, Mrs. Nelson identifies herself as a graduate of Professor Yuell's Swedish massage system and as a "cancer specialist —at your own risk."

MISSOURI

Personal.—Dr. George E. Bellows has resigned as chairman of the public health and welfare committee of the chamber of commerce of Kansas City, after twelve years' service. Dr. Edward H. Skinner was named to succeed him.——Dr. John D. Hayward was presented with a silver loving cup by the St. Louis County Medical Society, January 10, in appreciation of his services as president of the society in 1933.——Dr. Robert T. Gibbs, Mexico, recently completed fifty years in the practice of medicine.——Dr. William O. Hawkinson, Roanoke, recently observed the completion of his fiftieth year in the practice of medicine.

The Press and Medical Achievements.—The use of the names of members of the St. Louis Medical Society in connection with news items "describing the art of manipulation and instrumentation of certain given cases" is disapproved by the ethics committee, according to the society's bulletin. The right of the public to information and achievements of new developments by local members of the profession is acknowledged by the committee, but, it points out, "the publication, the event and the achievement do not carry the ethical justification for iteration on the part of certain members wherein the publication carries their name or names."

Society News.—A symposium on allergy constituted the meeting of the St. Louis Medical Society, March 27, with Jacques J. Bronfenbrenner, Drs. French K. Hansel, Charles H. Eyermann, Lee P. Gay and Charles M. Stroud as the speakers.——Speakers before the Jackson County Medical Society, Kansas City, March 20, were Drs. James B. Weaver and Ellis W. Willhelmy on "The Narrowed Lumbosacral Disk as Etiologic Factor in Sciatica," and "Achylia Gastrica," respectively. Dr. John W. Shuman, Los Angeles, discussed "Thyroidism" before the society, April 10, and Dr. Thurman B. Rice, Indianapolis, "The Private Physician in Public Health."——Dr. Julius Frischer, Kansas City, was guest speaker before the Newton County Medical Society at Neosho, March 19, on "Transurethral Electrosurgery of the Prostate."——At the clinical meeting of the St. Louis Pediatric Society, April 6, Dr. Stanley L. Harrison, among others, discussed "Paroxysmal Tachycardia in a Three Months Old Infant, with Review of Previous Cases."

MONTANA

Society News.—Dr. Laurence G. Dunlap, Anaconda, was reelected president of the Montana Academy of Ophthalmology and Oto-Laryngology at its midwinter section meeting in Missoula, February 12, and Dr. Ashley W. Morse, Butte, reelected secretary. The society will entertain the Pacific Coast Oto-Ophthalmological Society at its meeting in Butte, July 16-18, and the Western Ophthalmological Society at its convention in Butte, July 19.——Dr. Roderic P. O'Connor, San Francisco, demonstrated his muscle operation at clinics in Butte and Anaconda, February 22.

NEVADA

Annual Registration Due May 1.—All practitioners of medicine and surgery holding licenses to practice in Nevada are required by law to be registered annually on or before May 1, with the treasurer of the Board of Medical Examiners, and at that time to pay a fee of $2. Failure to pay operates to forfeit a licentiate's right to practice medicine and his license to practice can be reinstated thereafter only on the payment of a $10 penalty.

NEW JERSEY

Bill Passed.—S. 136 has passed the senate, proposing to grant to physicians treating persons injured by the fault of other persons liens on all claims, rights of action, judgments, compromises or settlements accruing to the injured persons by reason of their injuries.

Society News.—Dr. Stanley L. Wang, New York, addressed the Bergen County Medical Society, Hackensack, March 13, on urinary tuberculosis.——Dr. Isidor S. Ravdin, Philadelphia, addressed the Camden County Medical Society, Camden, March 6, on "End-Results of Biliary Tract Disease."——Dr. John J. Moorhead, New York, was the speaker before the Atlantic County Medical Society, Atlantic City, March 9, on "Essentials of Traumatic Surgery."——Dr. Dean Lewis, Baltimore, President, American Medical Association, addressed the Essex County Medical Society, Newark, March 8.

NEW YORK

Dr. William Pierce Honored.—The Medical Society of the County of Montgomery gave a banquet, February 14, at the Elks Club, Amsterdam, in honor of Dr. William R. Pierce, secretary of the society since 1904, who has completed fifty years in the practice of medicine. Dr. Horace M. Hicks was master of ceremonies, formal addresses were made by Drs. Orrin S. Wightman and Daniel Philip MacGuire, New York, and many persons paid tribute to Dr. Pierce in short speeches. Dr. Pierce was graduated from the University of Pennsylvania School of Medicine in 1884.

Bills Introduced.—S. 1710 and A. 2170 propose to permit corporations to be organized under the membership corporations laws of the state to establish, maintain and operate a nonprofit hospital service plan. Such corporations are to be exempt from the insurance laws of the state. S. 1724, to amend the medical practice act, proposes to make it unlawful for any one other than a licensed physician to conduct, direct, supervise or control the work or reports of a clinical laboratory. The bill defines a "clinical laboratory" as a "laboratory in which tests are made on individual persons, their secretions, excretions, blood and tissues to aid in the diagnosis, prognosis, or treatment of the individual's physical or mental state or states." A. 2118, to amend those provisions of the medical practice act relating to osteopathy, proposes (1) to refer to osteopaths as "osteopathic physicians" and (2) to provide that a license to practice osteopathy shall not entitle the holder thereof to perform any surgical operation involving an incision opening a natural body cavity, or any surgical operation for the removal of cancer or other tumor, for the amputation of an extremity or an appendage, or for the removal of any gland or organ, or part thereof, of the human body. Such a license shall permit the holder to use those agencies incidental to the care of the diseases included in the examinations of the board of medical examiners, but this shall not be interpreted as authorizing the use of internal medication for the cure of disease. S. 1677 and A. 2165, to amend the education law relative to credentials, propose to make it unlawful for any person to attempt to obtain by fraudulent means any certificate of registration or any diploma, certificate or other instrument, or duplicate thereof, purporting to confer any literary, scientific, professional or other degree. A. 2164, to amend the medical practice act, proposes to make it a ground for the revocation of a license to practice medicine for the holder thereof to be guilty of unprofessional conduct. S. 1663 and A. 2123 propose to create in the department of mental hygiene a board of psychiatric examiners to consist of the state commissioner of mental hygiene, the head of the department of psychiatry or of neurology and psychiatry of a medical college in the state, and a physician selected by the council of the medical society of the state. This board is to license as qualified psychiatrists all applicants who (1) have been licensed to practice medicine for at least five years and have had five years' experience in actual practice and (2) have had three years' full time practice in the care and treatment of persons suffering from mental diseases or mental defects in an institution providing for such treatment and having accommodations for at least fifty patients, or who have devoted five years immediately prior to their application to a practice confined wholly or substantially to the care and treatment of persons suffering from nervous and mental diseases or mental defects. S. 1632 and A. 2078, to supplement the workmen's compensation act, propose to require employers to pay compensation and provide medical care and treatment to employees contracting silicosis in the course of their employment.

New York City

Campaign Against Rats.—Under the direction of the U. S. Public Health Service, 200 workers furnished by the Civil Works Administration were to begin a forty-five day campaign against rats during the latter part of February, according to the New York *Times*. It was expected that the number would shortly be increased to 1,800 men, who would be armed with 67,000 traps and 2,000 flashlights. They were to hunt the rodents under piers along the waterfront and in lofts, warehouses and abandoned buildings. Dead rats were to be incinerated, but a number were to be saved alive for experimental work in connection with typhus fever and Brill's disease in the government laboratory at Rosebank, Staten Island. The extermination of rats is part of a program for typhus control begun by the U. S. Public Health Service two years ago, it was said.

Personal.—A committee headed by Dr. Haven Emerson will make a survey of tuberculosis in the city at the request of the department of hospitals.——Dr. Charles C. Hedges has been appointed superintendent of Roosevelt Hospital.——Dr. James B. Collip, professor of biochemistry, McGill University Faculty of Medicine, Montreal, delivered the William Henry Welch Lectures of Mount Sinai Hospital, March 26-27, on "Recent Advances in the Physiology of the Anterior Pituitary Gland."——Dr. Robert Abrahams was the guest of honor at a dinner given, March 8, by the executive committee of the New York Physicians-Yorkville Medical Society.——The fiftieth anniversary of the graduation of Dr. Robert J. Carlisle was celebrated at the reunion and smoker of the alumni association of University and Bellevue Hospital Medical College, March 23.——Dr. Leopold Jaches was the guest of honor at a dinner recently in honor of his twenty-fifth anniversary as radiologist at Mount Sinai Hospital.

University News.—A new degree of doctor of medical science for graduate study in medical fields was recently authorized by the trustees of Columbia University. In petitioning the council for the degree, the faculty of medicine pointed out that such a degree was needed to identify competent practitioners in the specialized branches of clinical medicine and to protect the public from inadequately trained persons. Three years' training after the hospital internship and original work in graduate medical studies will be required of candidates for the degree of doctor of medical science, which replaces that of master of science now conferred for similar work.——Edgar Allen, Ph.D., professor of anatomy, Yale University School of Medicine, New Haven, Conn., delivered the second of a series of lectures being sponsored by the department of biology, New York University, at the New York Academy of Medicine, March 22, on "The Endocrine Control of Menstruation." Wilbur W. Swingle, Ph.D., Edwin Grant Conklin professor of biology, Princeton University, Princeton, N. J., delivered the third lecture, April 12, on "Physiological Study of the Adrenal Cortex."

OHIO

Personal.—Dr. Frederick C. Gunkel, Cincinnati, recently completed fifty years of medical practice.——Dr. Basil B. Brim has been named health commissioner of Toledo, now a part time position.——Dr. Matthew T. Love, Shelby, recently celebrated the fiftieth anniversary of the beginning of his medical practice.——Dr. James M. Lantz, Lancaster, has announced his candidacy for election to the House of Representatives.——Dr. Owen S. Deathridge, clinical director of the Veterans' Administration Facility at Milwaukee since 1927, has been transferred as chief medical officer to the facility at Dayton.——Dr. Dennis J. Murphy, recently of the staff of the Veterans' Administration Facility at Marion, Ind., became administrative head of the facility at Chillicothe in January, succeeding Dr. Frederick R. Sims, who has been transferred to Washington, D. C.——Dr. John A. Roach, Alliance, celebrated the fiftieth anniversary of his graduation from Western Reserve University School of Medicine, February 28.

Society News.—The public health committee of the Cleveland Academy of Medicine is giving special attention to the problem of amebiasis and has conferred with a special committee of the Cleveland Hospital Council on the problems of early recognition and measures for preventing spread of the disease. Drs. William J. Merle Scott and John J. Morton,

Jr., Rochester, N. Y., addressed the academy, March 16, on peripheral arterial disease.——Henry F. Vaughan, Dr.P.H., health commissioner of Detroit, addressed the Toledo Academy of Medicine, March 2, on "Professional Participation in Public Health Work."——The Toledo Pediatric Society was recently organized, with Dr. Lawrence I. Clark as president and Dr. Isadore R. Cohn as secretary.——Dr. Joseph H. Barach, Pittsburgh, addressed a joint meeting of the Tuscarawas and Harrison county medical societies in Uhrichsville, March 8, on "The Nutritional Problem of the Diabetic Patient."——Drs. James R. Jarvis, Van Wert, and Lawrence N. Irvin, Ohio City, addressed the Van Wert County Medical Society, Van Wert, March 6, on "The Challenge of Modern Obstetrics."——Dr. William A. Stoutenborough, Columbus, addressed the Champaign County Medical Society, Urbana, March 9, on "Strabismus in Children."——Speakers before the Wood County Medical Society, March 15, were Drs. James B. Rucker, Jr., and Thomas A. Owens, Toledo, on amebiasis, and Thomas F. Heatley, Toledo, fractures of the skull.——Dr. William H. Bunn, Youngstown, addressed the Columbiana County Medical Society, Lisbon, March 13, on cardiac irregularities and their treatment.——Dr. John H. J. Upham, dean, Ohio State University College of Medicine, Columbus, and chairman, board of trustees, American Medical Association, addressed the Summit County Medical Society, Akron, April 3, on "Heart Disease and Heart Failure, the Modern Problem of Middle Life."——Dr. John W. Carmack, Indianapolis, addressed the Montgomery County Medical Society, Dayton, April 6, on "Cooperation of the General Physician and the Otolaryngologist in the Treatment of Nasal Sinus Infection."

PENNSYLVANIA

The Psittacosis Epidemic in Pittsburgh.—A committee of the Allegheny County Medical Society appointed to cooperate with the department of health of Pittsburgh in devising measures to stamp out the epidemic of psittacosis, to which several deaths have been attributed, issued recommendations following a conference with the department, March 28. The recommendations were to be used as a basis for a city ordinance controlling importation and owning of psittacine birds. The committee recommended (1) that all birds of the psittacine family brought into Pittsburgh since January 1 should be destroyed; (2) that all birds of any species that have been housed in the same store as those of the psittacine family since January 1 should be destroyed; (3) that transportation of all birds into the city be prohibited; (4) that owners of birds of the psittacine family be required to register such birds with the health department, and (5) that owners should be required to report immediately to the health department the illness or death of any bird of the psittacine family. The county medical society, March 20, requested the health department to furnish all available information about the epidemic and to provide isolation facilities for segregation and care of patients with the disease. The health department then requested the society to appoint a cooperating committee, which consisted of Drs. I. Hope Alexander, chairman; William W. C. Maclachlan and Walter F. Donaldson. Dr. Ray P. Moyer, director of health, went to Washington, March 23, to confer with the U. S. Public Health Service concerning further measures of control and the reported irregularities in shipment of birds from California. An isolation ward was established at the Municipal Hospital, March 22. Newspapers reported that about fifty cases of the disease had occurred, with ten deaths.

Testimonial Dinner to Dr. Heckel.—The annual dinner of the Allegheny County Medical Society was held in honor of Dr. Edward B. Heckel, Pittsburgh, former chairman of the Board of Trustees of the American Medical Association, April 3, at the Hotel Schenley, Pittsburgh, in recognition of his services and leadership. Gordon J. Laing, Ph.D., dean of the Division of the Humanities, University of Chicago, delivered an address entitled "Are Doctors Human?" At the annual meeting of the society in the afternoon Dr. George E. Pfahler, Philadelphia, delivered an address on "Radiologic Treatment and Results in Cancer, with Special Reference to Cancer of the Breast and Mouth," and Dr. Marion A. Blankenhorn, Cleveland, conducted a clinic. Dr. Heckel, who is a native of Pittsburgh, was educated at Allegheny College and at Bellevue Hospital Medical College, New York. He served as president of the county society in 1905, president of the Medical Society of the State of Pennsylvania in 1913-1914 and was chairman of the Board of Trustees of the American Medical Association from 1925 to 1932. In addition he is a former president of the Pittsburgh Academy of Medicine and the Pittsburgh Ophthalmological Society. He was also for many years a member of the House of Delegates of the American Medical Association. A hand engrossed framed testimonial was presented to him expressing felicitations on his forty-four years of continuous service to the society.

SOUTH CAROLINA

Bill Passed.—S. 770, to enact the uniform narcotic drug act, has been passed by the senate and the house.

TENNESSEE

University News.—Dr. Alphonse R. Dochez, professor of medicine, Columbia University College of Physicians and Surgeons, New York, delivered the Phi Beta Pi lecture at Vanderbilt University School of Medicine, February 23, on "The Etiology of Acute Infection of the Upper Respiratory Tract."——The Vanderbilt Medical Library has acquired an extensive collection of books and periodicals of historical interest from Dr. George H. Weaver, Chicago. It contains files of some of the earliest medical journals published in the United States, letters and medical prints.——Dr. Elliott P. Joslin, Boston, conducted a clinic on diabetes at the university, February 14, and Dr. Joseph F. McCarthy, New York, a clinic on urology, March 6. Dr. Paul H. Ringer, Asheville, N. C., addressed the students, March 7, on management of tuberculosis.

Personal.—Dr. Jesse C. Ellington, who has been on the staff of the U. S. Public Health Service in the Panama Canal Zone since June 1931, has accepted a position as field assistant with the state department of health, it is reported. Dr. Ellington was formerly on the staff of the department.——Dr. Monroe F. Brown, Memphis, has been appointed health officer of Lincoln County.——Dr. Owen F. Agee has been appointed director of a new health unit in Blount County.——Dr. Samuel Denton, Buffalo Valley, was guest of honor at a dinner given by his family and friends, February 22, celebrating his eightieth birthday. Fifty-three persons attended.——The eighth annual Balfour Lecture in Surgery at the University of Toronto Faculty of Medicine was delivered, April 3, by Dr. William D. Haggard, Nashville.

Health at Memphis.—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended March 31, indicate that the highest mortality rate (22) appears for Memphis and that the rate for the group of cities as a whole was 12.4. The mortality rate for Memphis for the corresponding week of 1933 was 14.2 and for the group of cities, 11.3. The annual rate for eighty-six cities for the thirteen weeks of 1934 was 12.7, as against a rate of 12.3 for the corresponding period of the previous year. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

Society News.—Dr. Frederick E. Marsh addressed the Chattanooga and Hamilton County Medical Society, February 22, on "Medical and Dietary Treatment of Gallbladder Disease."——Dr. James B. E. Neil was the speaker at a meeting of the Knox County Medical Society, Knoxville, January 16, on "Use of High Frequency Current in the Treatment of Prostatic Obstruction."——Drs. Alfred Blalock and Edward H. Barksdale, Nashville, among others, addressed the Hardin-Lawrence-Lewis-Perry-Wayne Counties Medical Society in Waynesboro, in January, on "Empyema" and "Increased Frequency of Urination," respectively.——Dr. Byrd S. Rhea, Lebanon, presented a paper on complications of pregnancy before the Wilson County Medical Society, March 8.——Speakers before the medical society of Carroll, Henry and Weakley counties in McKenzie, February 6, were Drs. Cobb Pilcher and Tinsley R. Harrison, Nashville, on early diagnosis of brain tumor and cerebral vascular disease, respectively, and George R. McSwain, Paris, brain tumor.

TEXAS

Diphtheria Immunization in Dallas.—Because Dallas has been shown to have the highest diphtheria morbidity and mortality of any city in the United States, the department of school health work recently undertook a survey of immunization in the public schools. The survey was conducted in forty-six elementary schools in which 27,094 children were enrolled. Questionnaires were returned by 15,321 parents and the reports covered 45,000 children of elementary, preschool and high school ages. During the school session 1932-1933 there were 138 cases of diphtheria among elementary school children, with a loss of 1,750 days and 146 children were absent 1,330 days as diphtheria contacts.

Society News.—Dr. Edward H. Skinner, Kansas City, was the guest speaker at a meeting of the Texas Radiological Society, in Waco, January 8, on "Radiologic Practice and Responsibility."——The fifth and sixth districts of the Texas State Medical Association held their second international postgraduate medical assembly in San Antonio, January 17-19. Guest speakers included Drs. Waltman Walters and Henry F. Helmholz, Rochester, Minn.; Arthur W. Proetz, Willard Bartlett and George Gellhorn, St. Louis; Franklin G. Ebaugh, Denver; John A. Kolmer, Philadelphia; Joseph Hume, New Orleans; Miguel Bustamente, Gabriel Leyva Alarcon, Gustavo Baz and Enrique Martinez Barragan, all of Mexico. Dr. Charles P. Yeager, Corpus Christi, was elected president. ——Drs. James T. Mills and Thomas H. Cheavens addressed the Dallas County Medical Society, March 8, on "Reconstructive Surgery of the Head and Neck" and "Forced Drainage of the Cerebrospinal Fluid," respectively, and Dr. Charles B. Sanders led a pathologic conference on amebic dysentery. Drs. Albert P. D'Errico and Lemuel C. McGee addressed the society, March 22, on "Cerebral Injury Sequelae: Their Diagnosis and Treatment" and "Cardiospasm," respectively.——Dr. Herbert E. Hipps, Marlin, among others, addressed the Falls County Medical Society, January 8, on "Geometry of Fractures."—— Dr. Roland T. Travis, Jacksonville, addressed the Henderson County Medical Society, Athens, January 8, on appendicitis.

GENERAL

Society News.—The eastern section of the American Congress of Physical Therapy held a joint session with the New York and Pennsylvania physical therapy societies at the Columbia-Presbyterian Medical Center, New York, April 7. Speakers included Drs. William H. Schmidt, Philadelphia, on fever therapy; George Miller MacKee, New York, physical therapy in dermatology; Leroy W. Hubbard, Warm Springs, Ga., and Mount Vernon, N. Y., muscle training and reeducation in treatment of poliomyelitis; Max Thorek, Chicago, an electrosurgical method for obliterating the gallbladder; Robert H. Kennedy, New York, physical therapy in the treatment of fractures and Earl R. Carlson, New York, neurologic aspect and treatment of birth injuries.—— Dr. Chevalier Jackson, Philadelphia, was elected president of the Pan American Medical Association during the recent congress and Dr. Joseph Jordan Eller, New York, director general for five years. Vice presidents were elected from the countries represented and Dr. Jose E. Lopez-Silvero, Havana, Cuba, executive secretary for three years.

Board of Pediatrics Organized.—The American Board of Pediatrics completed its organization at a meeting in January in St. Louis, at which the following officers were elected: Drs. Borden S. Veeder, St. Louis, president; Henry F. Helmholz, Rochester, Minn., vice president, and Charles Anderson Aldrich, Winnetka, Ill., secretary. Other members of the board are Drs. Philip Van Ingen, New York; Harold C. Stuart, Boston; Alfred A. Walker, Birmingham; Wilburt C. Davison, Durham, N. C.; Franklin P. Gengenbach, Denver, and Edward B. Shaw, San Francisco. Three groups were defined for purposes of certification as follows:

Group I. Physicians who have limited their practice to pediatrics for more than ten years may be certified on their records until September, 1936; after that date examination will be required.

Group II. Physicians who have limited their practice to pediatrics for from six to ten years must submit evidence of at least one year's hospital training in a recognized pediatric center and of continued work in some pediatric institution or organization. Examination is required in this group.

Group III. Graduates of five years' standing or less must submit evidence of having completed one of the following forms of training: (a) one year in a general hospital with two years in a pediatric center or three years in a pediatric center; (b) two years' service in a pediatric center plus two years' practice in pediatrics, including continued work in some pediatric activity; (c) one year's service in a general hospital, one in a pediatric center plus three years' specialized practice of pediatrics including connection with some pediatric activity. Examination is required of all applicants.

The American Board of Pediatrics was founded by the joint action of the American Pediatric Society, the American Academy of Pediatrics and the section on pediatrics of the American Medical Association, each of which appoints three members.

Medical Bills in Congress.—*Changes in Status:* S. 822, to permit the use of the mails for the shipment of certain drugs and medicines to cosmetologists and barbers, was reached on the Senate calendar, March 29. Senator LaFollette, Wisconsin, asked that the bill go over to permit him to ascertain from the Department of Agriculture what its attitude is toward the measure. S. 2571 has passed the Senate and House, authorizing the Secretary of the Interior to arrange with the states and territories for the education, medical attention, relief of distress, and social welfare of Indians. S. 2800, the Copeland food, drink, drugs and cosmetics bill, was reached on the Senate calendar, March 29, but Senator Byrnes, South Carolina, objected to its consideration. H. R. 1766 has passed the House, to provide medical services after retirement on annuity to former employees of the United States disabled by injuries sustained in the performance of their duties. H. R. 7835, to provide revenue and equalize taxation, has been reported to the Senate, with amendments. One amendment proposed by the Senate committee would impose an excise tax on the first domestic processing of coconut oil, or sesame oil, or palm oil, or palm kernel oil, or sunflower oil, or imported whale oil, or imported fish oil, or imported marine-animal oil. The excise tax would be applicable to the medicinal oils. *Bills Introduced:* H. R. 8961, introduced by Representative Dingell, Michigan, proposes to amend the Reconstruction Finance Corporation Act, as amended, to provide for loans to nonprofit benevolent charitable corporations.

Kober Medalist and Lecturer Selected.—Dr. John Jacob Abel, professor of pharmacology, Johns Hopkins University School of Medicine, Baltimore, will be presented with the Kober Medal of Georgetown University School of Medicine, Washington, D. C., at the annual meeting of the Association of American Physicians in Atlantic City, May 1-2. Announcement of the award was made, March 28, at Georgetown, when Dr. Walter B. Cannon, George Higginson professor of physiology, Harvard Medical School, Boston, delivered the annual Kober lecture on "The Story of the Development of Our Ideas of Chemical Mediation of Nerve Impulses." The Kober Foundation of Georgetown sponsors the medal and lecture each year to commemorate the birthday of the late Dr. George M. Kober, formerly dean of Georgetown University School of Medicine. The medal is presented for high achievement in the field of medical research, but, according to the report, Dr. Abel is being recognized for his forty-one years of distinguished service as professor of pharmacology at Johns Hopkins rather than for any particular contribution to science this year. Dr. Abel gave the first Kober lecture in 1925. Other honors conferred on Dr. Abel include the Research Corporation prize in 1925; the Willard Gibbs medal, awarded by the Chicago section of the American Chemical Society in 1926, and the gold medal of the Society of Apothecaries of London, 1928. Dr. Abel is known for research on animal tissues and fluids and on the physiologic and therapeutic action of various substances. He is the editor of the *Journal of Pharmacology and Experimental Therapeutics.* He is a member of many scientific societies and a past president of the American Association for the Advancement of Science.

Changes in Status of Licensure.—The Massachusetts Board of Registration in Medicine reported the following action:

Dr. Dwight F. Willis, Boston, license restored, January 25. It had been suspended, Sept. 28, 1933.

The Oregon Board of Medical Examiners reports the following action:

License of Dr. Walter R. Anderson, Portland, was revoked at a recent meeting of the board for unprofessional conduct.

The New Jersey State Board of Medical Examiners reports the following revocation:

Irvin W. Kirk, Millville, registration of medical diploma revoked for the practice of illegal operations.

The State Medical Board of the Arkansas Medical Society reports the following:

Dr. Peter A. Taylor, formerly of St. Joe and Gould, Ark., license revoked, Nov. 14, 1933, because he had been "convicted of a crime involving moral turpitude." In June, 1930, found guilty and sentenced to serve three years in the Arkansas State Penitentiary for perjury in the Pope County Circuit Court.

The New York State Board of Medical Examiners reports the following action taken at a meeting, February 15.

License of Dr. Burdette M. Christianson, Brooklyn, suspended for six months, dating from March 15.

The state department of health of West Virginia reports the following action taken at a meeting in March:

License of Dr. Frederick A. Fitch, formerly of Huntington, now of Catlettsburg, Ky., restored, with agreement that he would not apply for narcotic permit. The license was revoked in March, 1932.

License of Dr. Elihugh H. Kile, Cedarville, revoked for violation of the Harrison Narcotic Act.

CORRECTION

Lines on Chart in Hospital Number.—In the chart on page 1005 in THE JOURNAL, March 31, each horizontal line represents 15 million population instead of 10 million as stated in the footnote.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 17, 1934.

The Work of the Medical Research Council

Only within the last thirty years has financial provision, private or public, been made on a large scale in Great Britain for medical research. A beginning was made when Lord Iveagh erected and endowed the Lister Institute for laboratory investigations. The benefaction of Sir Otto Beit, which enabled promising young workers to devote themselves to research by means of fellowships, followed. In 1911, when the national health insurance act came into operation, an annual rate of 2 cents for every insured person was paid into a fund for medical research. This furnished $265,000 per annum, for the administration of which a medical research committee was appointed, and the National Institute for Medical Research was established at Hampstead (in London) in 1913. The Great War began in 1914 and diverted the work of the committee from its primary object. After that catastrophe the committee was reconstituted as the Medical Research Council, and the government increased the annual provision to $625,000 and subsequently to a still greater amount to meet further development. The reconstituted organization took its place beside the Department of Scientific and Industrial Research, which had meanwhile been created. More recently these have been joined by the Agricultural Research Council, thus bringing science to the service of the community in the three main divisions of human affairs. The Medical Research Council consists of such leading men as Sir Charles Sherrington, J. A. Arkwright, Lord Dawson, Prof. E. D. Adrian, Prof. A. E. Boycott, Sir Thomas Lewis, Prof. D. P. D. Wilkie, Prof. H. S. Raper and Prof. Edward Mellanby. The council is able to foster the most effective relations between science and the state. Though supported by the latter, it has full liberty to pursue an independent policy for the advancement of medical knowledge and it can collaborate freely with other organizations. It is not a mere advisory body, but has full control over its funds and appoints its own administrative officers. Its funds comprise not only the government grant but also money from other sources, public or private, placed at its disposal for medical research.

THE CHANGING PROBLEM OF DISEASE

In its recent annual report the council points out that in the twenty years since the establishment of the original committee the problems of medical research have altered. Many diseases have greatly diminished in deadliness. In some cases no cause can be assigned for this; in others the difference is clearly due to improved social conditions; in still others the credit may be given to preventive medicine. There remains an important group in which the change is the direct result of knowledge acquired by recent research, and to this the workers in this country—many aided by the council—have largely contributed. Among the diseases that have almost disappeared, although for no known reason, is chlorosis, which twenty years ago was one of the commonest diseases in young women. Another disease in the disappearing group is epidemic diarrhea among children. Increased sobriety has rendered cirrhosis of the liver a comparatively rare disease. The work of the council has increased the sum total of knowledge of a number of diseases, but chronic arthritis remains as mysterious as ever. "Status lymphaticus" has been shown to have no existence as a definite morbid state. Mackay's work, published by the council two years ago, has awakened the medical profession to the wide incidence of anemia in infants. Witts has greatly advanced clinical knowledge of macrocytic and microcytic anemias. Laidlaw, Andrewes and Smith have succeeded in conveying human influenza to ferrets and thus bringing it within the experimental field. Two years ago the council appointed a therapeutic trials committee, composed of clinicians and pharmacologists, to make trials of new remedies.

Lead in Canned Sardines

A new form of food contamination with lead has been discovered. The catering firm of Lyons & Co. has its own chemical laboratories, in which routine examinations for metallic impurities are made of foods that have been in contact with solder. In regard to sardines, it was found that 88 per cent of the samples contained less than 20 parts per million of lead but that the remainder yielded larger quantities, in one case 150 parts per million. In the cans no relation could be found between the amount of exposed solder and the lead contamination. But investigation of the process of sardine packing showed that the fish were cooked on metal grills, which were supposed to be made of tinned iron. In some factories, however, they were covered with soft solder. Contact with such grills was found to produce serious contamination with lead.

The Saving of Life in Sunken Submarines

In the house of commons the first lord of the admiralty stated that after exhaustive consideration the admiralty had come to the conclusion that the raising of sunken submarines in time to save life was not feasible and that the only practicable method of saving life was the Davis submerged escape apparatus, which was now fitted to all submarines. For the future it was proposed to rely on this. The United States authorities had reached the same conclusions. Those serving in submarines are all trained in the use of the Davis escape apparatus (described in THE JOURNAL, Sept. 5, 1931, p. 715). If men imprisoned in a sunken submarine thought that attempts were going to be made to raise the vessel there would be grave danger that in spite of their training in the escape apparatus they might be tempted to await the result of salvage operations instead of saving themselves by means of the apparatus. The result would be that they would lose the strength necessary for escape. Vessels would at once proceed to the scene of the disaster and a signal would tell the crew in the submarine of their presence to rescue them after they had escaped.

Davidson Black

The death from heart failure at Peiping of Davidson Black, M.D., D.Sc., F.R.S., professor of anatomy at Peiping Medical College and honorary director, Cenozoic Research Laboratory, National Geological Survey of China, is a great loss to science. He was only 49 and was still engaged on researches in connection with the fossil man discovered by him in 1929. When the field work closed at Chou Koutien at the beginning of the winter, besides the remains of Sinanthropus, deposits had already yielded bones of baboons which occupied caves in tertiary times and evidences of upper paleolithic culture. Davidson Black was convinced that the surface deposits were only scratched and was looking forward to resumption of excavations next spring. Born in Canada, he was educated at the University of Toronto. From 1909 to 1911 he was instructor in anatomy at Western Reserve University School of Medicine, Cleveland. In 1913 he became assistant professor, a post which he resigned to become a captain in the Canadian Army Medical Corps. In 1918 he was appointed professor of neurology and embryology at Peiping Union Medical College. In a tribute in the *Times*, Prof. C. Elliot-Smith states that Davidson Black did more for human paleontology than any one else. At the same time his work represented only the beginning of a task that awaits completion.

The Nature of Influenza

The annual report of the Medical Research Council contains an important study of influenza. Working at the Natural Institute of Medical Research, Drs. P. P. Laidlaw, C. H. Andrewes and Wilson Smith succeeded in conveying human influenza to ferrets. Washings from the nasal mucosa of human cases were passed through a filter that was capable of keeping back ordinary bacteria. The resulting filtrate, containing no microscopically visible organisms, was instilled into the nostrils of ferrets. A characteristic feverish and a catarrhal reaction followed and was transmissible by similar means to other ferrets. After recovery, which was usual, the animals were immune to further infection for a period of which the length has not yet been determined. Infection of the ferret occurred only when the material was instilled into the animal's nostrils. Injection by the needle was ineffective. The experiments have also shown a relation between the influenza virus and that found by Shope in America in the epizootic known as hog influenza. Shope found that this virus by itself produced trivial symptoms but that it was associated with a bacillus allied to the bacillus of Pfeiffer. The bacillus was incapable of producing the swine disease in epizootic form. Only when virus and bacillus were allied as primary and secondary invaders was the severe and naturally spreading disease produced. A strain of the hog influenza virus, supplied by Shope, has been found to produce in the ferret a condition indistinguishable from that caused by the virus of influenza. Further, a ferret that recovers from the influenza virus infection with the swine virus is immune to the influenza virus, while recovery from the latter infection produces a substantial, though not complete, immunity to the former. It is noteworthy that many years ago the view that influenza is the fertilizer of the soil for the growth of other diseases was put forward. The late Dr. Brownlee showed that influenza tends to recur every thirty-three weeks. If this takes place between April and December the complaint is mild, but if it takes place between December and April it is much more severe. Perhaps this is due to the fact that the virus prepares the soil for the bacillus of Pfeiffer and for the organisms of pneumonia and other diseases.

PARIS

(From Our Regular Correspondent)

Feb. 28, 1934.

Intravenous Injections of Alcohol in Pulmonary Suppurations

Intravenous injections of alcohol in pulmonary suppurations, which awakened alarm at first, are being more widely used in France since the technic of the method has been perfected, and manifest results have been secured. Before the Société de médecine des hôpitaux de Paris, Merle and Gurfinkel reported excellent results secured in three cases of pulmonary suppurations by the use of this method. One case was an acute gangrenous suppuration of the pulmonic type. The two other cases were chronic types of pulmonary suppuration in which the extent and the old nature of the lesions precluded surgical treatment. In these three cases the results of the treatment were such that they leave little doubt as to the therapeutic value of this method. These observations, with similar observations previously published, justify one in regarding the treatment of acute or chronic pulmonary suppurations with intravenous alcohol as a method of the first order when surgical treatment is not yet indicated, when its indications are doubtful, or when it is no longer possible. These cases possibly constitute the majority. One is even justified in expecting that a systematic and early use of this method will reduce the number of cases in which it will be necessary to intervene surgically. The harmlessness of this treatment, already established by various authors, appears absolutely certain to Merle and Gurfinkel. In more than 250 injections they observed no serious untoward incidents, aside from pain symptoms, which are of regular occurrence but usually easily tolerable, and signs of shock—commonly moderate. The authors concluded that this shock could be ascribed to the strongly hemolytic action of the solutions of alcohol in the serum with 4.5 per cent dextrose or in the artificial serum. This solution has a much less accentuated hemolytic potency; it diminishes sensibly the shock and the sclerosing action on the veins. The optimal dose of this solution appears to be from 40 to 50 cc. per injection. But, in order to secure therapeutic results, it appears indispensable to use rather large total doses, thus necessitating for a cure a total quantity of from 200 to 300 cc. of 45 per cent alcohol or from 600 to 900 cc. of the 33⅓ per cent solution.

Verification of the Causes of Death

Repeated complaints have been made because of the unreliable nature of French statistics on the causes of death. The Academy of Medicine became aroused and addressed to the minister a resolution demanding that the verification of the causes of death be made with greater care. The minister has sent a letter of instructions to the mayors of all the communes of France. The instructions provide that the mayor must designate an officer to examine the body and determine the true cause of death. He must state also the name of the physician who attended the patient and that of the pharmacist who furnished the medicines. No one imagines that this letter of instructions to the mayors will immediately bring about ideal conditions. In the large cities there is already a well organized service for the verification of the causes of death by specially appointed physicians.

BERLIN

(From Our Regular Correspondent)

Feb. 19, 1934.

Emigration of Physicians from Germany in 1933

According to information compiled by Regierungsrat Dornedden of the federal bureau of health, 284 Berlin physicians emigrated in 1933 to some foreign country. The destination given in 117 instances was Palestine; in 25, France; 22, England; 13, Switzerland; 13, Italy or Spain; 11, Austria, Czechoslovakia or Poland; 9, Scandinavia and northeastern Europe; 8, Netherlands and Belgium; 5, southeastern Europe; 1, Luxemburg, and 30, extra-European countries, while the destination of 30 physicians is unknown. In the case of forty other

TABLE 1.—*Percentage of Emigrating Physicians from Berlin and from the Remainder of Germany*

Destination	From Berlin	From the Remainder of Germany
Palestine	46.1%	37.1%
France	9.8%	11.1%
England	8.7%	6.2%
Switzerland	5.1%	8.6%
Italy	5.5%	6.2%
Other European countries	15.0%	22.2%
Extra-European countries	11.8%	8.6%
	100.0%	100.0%

physicians who left Berlin in 1933, the post office was unable to ascertain the present abode. Outside of Berlin, reports on only 128 emigrating physicians have been received. Of this number, seventy had been located in cities of more than 100,000 population, so that 86 per cent of the emigrating physicians were from metropolitan centers.

It appears that almost half of the emigrating physicians were under 35 years of age, and more than a further third belonged to the 35-44 age group. Whereas 39.9 per cent of the German

medical profession belongs to the age group 45 and above, only 17.5 per cent of the emigrating physicians belonged to this group. The percentage of women physicians among the emigrants was 14.8, whereas the percentage of women in the medical profession in Germany is 6.5. The number of emigrating physicians representing the specialties is shown in table 2.

TABLE 2.—*Specialists Among the Emigrating Physicians*

	Distribution of Specialists		
	In Germany as a Whole	Emigrating Male Physicians	
		From Berlin	From Remainder of Germany
General practitioners	63.3%	43.9%	48.7%
Internal medicine	7.0%	20.0%	13.5%
Surgery	5.0%	5.0%	5.4%
Gynecology	3.3%	5.8%	5.4%
Children's diseases	2.5%	6.7%	10.8%
Dermatology and venereal diseases	4.0%	7.1%	4.5%
Diseases of eye, ear, nose and throat	5.6%	5.4%	4.5%
Other specialties	7.9%	6.2%	7.2%
	100.0%	100.0%	100.0%

It is not yet possible to state exactly the number of physicians who emigrated in 1933. This report, however, gives an idea of the importance of the emigration of physicians from Germany, which, up to 1933, had been small.

Diabetes in Enzygotic Twins

Addressing the Berlin Medical Society, Professor Umber pointed out that diabetes is based on a constitutional inferiority of the islands of Langerhans. It is hereditary and causally independent of the environment. Enzygotic twins, who have identically the same hereditary characteristics, are particularly suitable for the study of hereditary diseases. According to the computations of von Verschuer of the Emperor William Institute for Anthropology there is a twin for every sixty adults, but only about one third of the pairs of twins are enzygotic. The establishment of the fact that twins are enzygotic is best based, according to Verschuer, on external resemblances with respect to features and bodily form, size, habitus, peculiarities of the organs (ears, eyes and nose), hair growth, qualities of character, trends and the like. A precondition is that they are of the same sex. Umber stated that he had observed three such pairs of twins. It was peculiar in all three pairs of twins that the type of diabetes was exceedingly similar in the two twins of each group. For instance, two twin sisters presented a frank diabetes gravis, and one sister who was not treated died early in coma, while the other sister received insulin treatment and survived longer. In another pair of twins there developed in one a mild case of senile diabetes, whereas the other had no glycosuria whatever. Inquiry revealed that the twin with diabetes had been a tavern keeper and a heavy drinker, whereas in the nondiabetic twin only a pathologic blood sugar curve betrayed his pancreatic weakness. These observations on enzygotic twins with diabetic disturbance of metabolism serve Umber as support for his theory that diabetes is a recessive hereditary disease, which is not caused by the environment but is influenced by it only in its mode of appearance.

Restricting the Medical Curriculum

Rust, the Prussian minister for science, art and public instruction, has transmitted to the medical faculties of the Prussian universities a decree of far-reaching importance on the subject of revision of the medical curriculum. The decree takes as its basis a new curriculum that was proposed by a Prussian faculty of medicine, and, in a somewhat modified form, it is already in force at universities outside of Prussia. The curriculum will need to be modified to fit local conditions; hence it is not intended that the proposals shall be binding on all institutions. Rust emphasized that in no case shall the specified number of hours of instruction be exceeded. If, for instance, a one-semester course in a subject is recommended, it will not be permissible for the subject to be presented in two semesters. The lectures in such cases must be revised. The same principle applies to clinics, in which a greater number of hours than is provided for in the decree may not be demanded. In the revised curriculum it must be made plain, the decree states, that not all subjects are of equal importance for training the practicing physician. In the preclinical studies, the instruction hours for the natural sciences must be greatly reduced. The minister expects the professors of chemistry, physics, zoology and botany to present in a separate course of lectures the subject matter for the medical students. If that does not seem possible, special instructors for the delivery of such lectures and the holding of the corresponding tests should be suggested to the Prussian minister of the interior. In the clinical studies, the clinics of internal medicine, surgery, gynecology, pediatrics, pathologic anatomy and all other subjects must be curtailed. It is not the task of clinical instruction to train specialists in all branches. The minister requested that the suggested changes be rigorously carried out, and he emphasized that the deans would be held responsible for the execution of the plan in accordance with the instructions issued. In case, in allotting work to the several professors, the hours of instruction assigned are in excess of what the new curriculum provides for, the minister will reduce the number of hours without any special inquiry. The new curriculum goes into effect with the opening of the summer semester 1934.

Incidence of Syphilis in Clinics

At the Munich Medizinische Universitätsklinik, of which Professor von Romberg is director, some 50,000 case histories covering the period 1912-1932 (1918 excepted) were studied statistically. It was found that, twenty years ago, almost 9 per cent of the patients had syphilis. During the war and the years following, the number of syphilitic patients rose owing to the increase particularly of latent infections in both sexes and an augmentation of aortic syphilis in the men temporarily up to about 11 per cent. Since 1923, however, there has been a decreased incidence, which has gradually become manifest in all types of syphilis. Thus, in 1932 the percentage of syphilitic persons (4.1 per cent) was far below the status of 1912.

Retrenchments of the Krankenkassen

For the aid of the sick, the expenditures in 1932 of the federally controlled krankenkassen in the German reich amounted to 858,000,000 marks ($326,000,000), or 81 per cent of the total expenditures. The average cost per member was 50.23 marks ($19.09). Owing to the reduction in receipts resulting from the extensive unemployment, considerable retrenchment in the expenditures for every purpose was necessary. As compared with 1931, the expenditures of the federal krankenkassen (omitting the federal allowance for family aid, which in 1931 amounted to $1,026,000 and in 1932 to $304,000) were reduced 29 per cent (aid for the sick 30 per cent, weekly benefits 19 per cent, and administrative costs 17 per cent), while the expenditures for the prevention of illness, health aid and burial benefits suffered the heaviest reductions; namely, from 51 to 52 per cent. As to aid for the sick, the expenditures for pocket money and convalescents' benefits were greatly reduced (80 and 74 per cent, respectively). The reductions for the following items were likewise heavy: domiciliary care, 42 per cent; aid for household expenses, 44 per cent; sick benefits, 40 per cent, and care of dependent members of families, 46 per cent. The reductions for the following purposes were not so heavy: physicians' fees, 21 per cent; hospital care for members, 25 per cent, and spa treatment, 22 per cent. The smallest reductions were for dental care, the expenditures for members having been only 15 per cent, and for family dependents only 14 per cent, lower than in 1931.

VIENNA

(From Our Regular Correspondent)

Feb. 12, 1934.

Rôle of Tobacco in Gastric Ulcer

At a meeting of the Gesellschaft der Aerzte, Dr. R. Friedrich of the Chirurgische Klinik discussed the rôle of tobacco in the etiology and postoperative treatment of gastric and duodenal ulcer. The predominance of the disorder in the male sex is striking, and among the men so affected heavy smokers are in the majority. Various researches and experiments make it probable that persons who have a weak stomach, or already have an ulceration, are injured by smoking. The smoking of from five to ten cigarets a day caused consistently an exacerbation of the symptoms in ulcer patients. Cigars do not seem to cause so much irritation. However, attention must be called to the fact that gastric ulcer is to be regarded as a manifestation of a general nervous predisposition, and that duodenal ulcer occurs often in well nourished, full blooded persons, being frequently induced by the ingestion of too strongly seasoned food. Smoking causes a marked increase in the secretion of gastric juice, and exact observations on a large series of patients have convinced Dr. Friedrich that patients who have been operated on for ulcer and continue smoking have more frequently pain and discomfort than those patients who discontinue smoking after the operation. He demands that a person operated on for gastric or duodenal ulcer shall give up smoking. It is true that now many women smoke, although statistics do not show an increase of ulcer cases among women. Perhaps the difference lies in the fact that women seldom smoke "on an empty stomach" and commonly smoke fewer and milder cigarets.

The Physical Bases of Short Wave Therapy

Four weeks ago the Biophysikalische Gesellschaft für Kurzwellenforschung was founded in Vienna, and just recently Prof. Dr. Paetzold of Erlangen delivered at its first session an address on "The Physical Bases of Short Wave Therapy." Paetzold explained that short waves effect a warming of the electrolytes; that is, the solutions of crystal salts, which are present in the body in large quantities and in various forms. Paetzold found that, with a definite resistance and a definite constant in an organism, the maximal heating of the organism (of the electrolyte) is brought about only by a certain wavelength. In general, this maximum is brought about in body fluids by waves from 3 to 15 meters in length. These waves are called ultrashort waves. They have an advantage over the short and long waves in that they produce geometrically straight rays, which can be precisely controlled and given any desired direction. They can easily penetrate otherwise poor conductors, so that overheating or burning of the skin is impossible. The easy penetration of the waves makes possible also a particular effect on the deeper tissues. In the transmission of electric heat energy, the skin, fatty tissues and bones receive less heat than the parts and organs of the body containing large amounts of fluids. Also the problem of selective heating was hereby solved, and the temperature differences between the various layers can be exactly determined. The advantages of the ultrashort waves permit their use especially in rapidly developing inflammatory processes, which is just the opposite of the use of diathermy.

Opposition to Closing the Second Frauenklinik

The ministry of finance has repeatedly urged the ministry of public instruction, which controls the affairs of the university, to leave in operation only one surgical clinic, one clinic of internal medicine and one gynecologic clinic, and to close the others. During recent years, one clinic for each of these branches of medicine has been closed, so that now there are only two clinics for each of these branches, instead of three, as formerly. Now it has been announced that it is the intention to close also the second Frauenklinik and to leave only the lecture room open. Need of retrenchment is not assigned as the reason for the proposed action, but attention is called to the fact that not only is the ambulatorium less frequented but also the number of births in Vienna has been greatly reduced. Vienna has the second lowest birth rate in Europe: 8.3 per thousand of population. Only Oslo, Norway, has a lower birth rate: 8.2. Last year the number of beds in this clinic was reduced from 300 to 68, and patients who could not be admitted, for lack of beds, were referred to the other clinic that was still functioning. But they did not go there but to the hospitals in the provinces. The plan to close the clinic has aroused great indignation. It is emphasized that the decrease in births is doubtless correct but that, on the other hand, the number of miscarriages and cases of disease in women is considerably higher. It is also impracticable to accommodate the large number of students in a single clinic. Moreover, the amount of money saved would be small and is not worth considering as compared with the physical and moral damage that would result for Austrian and foreign students through a reduction in the facilities for acquiring a medical education. The opposition to a purely bureaucratic conception of the problem, which neglects the ethical and politico-economic aspects, is so general that the hope is justified that the ministries will see the wisdom of reversing their decision.

NETHERLANDS

(From Our Regular Correspondent)

Feb. 6, 1934.

The Examination of Athletes

Dr. J. Van Mervenne describes in the *Tijdschrift voor sociale Geneeskunde* the Leeuwarden center for the examination of athletes. The center has four men physicians and one woman physician. Men and women are examined alternate weeks. Of 351 men examined, thirty-six were found unfit, eighteen having a circulatory, five a pulmonary, and nine a nervous disorder. Of 193 women examined, ten were found unfit, one having an exophthalmic goiter, two a nervous disorder, six a cardiac disorder and one arthritis.

Infection of Pupils by Their Teachers

The *Handelsblad* of Oct. 5, 1933, announced that the commune of Oostdongeradeel had voted an appropriation of 500 florins ($325) to send sixteen tuberculous children to the Sonnevanck Sanatorium. On making careful inquiries, this journal learned that a teacher in one of the schools of the commune had infected thirty pupils, the sixteen mentioned and fourteen others, who are receiving domiciliary treatment. The same thing happened in one of the De Hoorn schools, where fourteen children became infected and likewise the director of the school. Such catastrophes occur because in many places no medical certificate is required of teachers at the time of their appointment, and during their tenure of office they are subjected to no periodic health examinations.

The Supervision of Diabetic Patients

A committee of physicians met at Utrecht, under the chairmanship of Dr. A. Hijmans Van Den Bergh, to plan the formation of a national organization for the prolonged treatment of diabetes, in view of the increase in the number of diabetic patients in hospitals, relapses as soon as patients return home, and the high percentage of deaths from diabetes. The purpose of the organization is chiefly to establish, with the aid of attending physicians, a regular supervision of diabetic patients in their homes, to educate patients and those who care for them to understand the importance of the regimen. A committee was appointed to study the means of effecting the organization proposed.

Disinfection of Swimming Pools

In the hygienic laboratory in Utrecht, Idzerda and Wildervanck studied the disinfection of swimming pools. They publish in the *Nederlandsch Tijdschrift voor Geneeskunde* their results. They conclude that the addition of chlorine is preferable in the so-called continuous system, provided (*a*) the time necessary to pass the contents of the pool through the filters does not exceed eight hours, (*b*) the number of users does not exceed the accepted limits for the establishment in question, and (*c*) the water lends itself to this method of disinfection. The chloramine method of disinfection should be used for the "periodic" system. The chlorine-copper method of disinfection is in theory an interesting process. The study of the conditions that effect an accelerated disinfection, compared with the action of chlorine alone, has not been completed. Hence the application of this method of disinfection is admissible only in case the disinfective action of the water is regularly controlled.

A Blood Transfusion Service

The first blood transfusion service in the Netherlands was organized at Rotterdam by Dr. Van Dijk. When the donors are selected they are given a complete examination and, if found fit, receive a card indicating the blood group. The cards are placed on file at a central bureau, where a physician desiring a donor may apply. The donor is reimbursed for his outlays and his loss of time from work.

BUDAPEST

(From Our Regular Correspondent)

Feb. 3, 1934.

The Opening of the People's Hygienic Institute

A five story building has been erected at 3 Eötvös Street, in the heart of Budapest, for the People's Hygiene Museum, which was opened recently under the management of Dr. George Gortvay, lecturer to the university and ministerial councilor. The organization of this institute is as follows: 1. Directorate. 2. Scientific section: (*a*) research, collection of material; (*b*) publications, courses; (*c*) social archives and the editing of the *Socialpolitikia Sajtószemle* (Social-Political Press Review). 3. Propaganda section: (*a*) organization of health propaganda; (*b*) popular lectures, recitals and exhibits. 4. Technical section: the preparation of exhibits and propaganda material. 5. Museum, with eleven sections, comprising a vast amount of material. 6. Library of 30,000 volumes. Particularly complete is the material relating to industrial hygiene and the antialcohol campaign. There is a special reading room in connection with the library, and a public reading room. The institute has forty-five interesting films for use in connection with popular health lectures. Physicians and health institutes may borrow them free of charge.

The Work of the National Public Health Institute

The Hungarian Royal National Public Health Institute, which was opened five years ago, endeavors to apply achievements of modern hygienic studies into everyday life, as well as to train public health workers. Medical officers' courses of nine months' duration have been introduced. In connection with the institute is the "House of Physicians," which provides inexpensive board for graduate students. The institute has also a nurses' training school. The necessity for the training of nurses is shown by the fact that 56 per cent of the nursing staff in the hospitals has had no special training.

To make the campaign against infectious disease more effective, seven provincial bacteriologic testing stations have been erected. While the old central testing station had an average of 3,000 tests annually, the new institute performed 142,272 tests in 1932 and its branches performed 42,327 tests.

The institute introduced the Ramon preventive inoculations against diphtheria in 1929. To the end of 1932, 280,000 children had been given preventive inoculation.

After the thorough examination of 12,000 wells they marked in the villages all those wells which contain pure drinking water with a green cross and with the inscription Good drinking water. The institute tests all Green Cross wells twice yearly.

The institute has supervision also over drugs and proprietary medicines. The necessity for this was indicated by the fact that 92 per cent of all proprietary medicines tendered for registration were found inadequate.

The great effort to improve health conditions in the villages gave birth to the organization of so-called model districts, of which there are already six. The leaders of these model districts are the district physicians, while in the villages the health activities are carried on by the parish doctor, who is assisted in this work by women trained in health work. The institute maintains contact with these women by means of a semimonthly publication entitled the *Green Cross*, which informs them of all new phases of public health affairs.

The institute organized the systematic examination of village school children, and introduced the so-called lying-in huts where sick children are taken from their dark village houses and isolated. For the nutrition of the sick child, a goat is kept beside the house.

The leader and founder of this institution is Professor Johann, whose work is known beyond Hungary, as shown by the fact that the Council of the League of Nations, February 17, appointed him a member of its Public Hygiene Committee, which consists of ten delegated members and fourteen elected members.

Insulin Treatment of Schizophrenia

Dr. Julius Schuster, late assistant at the university psychoneurologic clinic, made the striking observation that a series of mental patients were undersensitive to insulin and from this fact he concluded that treatment with insulin might improve their condition. He had asserted previously in the *Archiv für Psychiatrie* (**88,** No. 5, 1928) that insulin has both a direct and an indirect action on the central nervous system. The experiments of Stief in insulin poisoning have shown that insulin is an ectodermotropic drug, and as such therefore acts on the brain cells. Schuster advocated the use of insulin in schizophrenia, with highly satisfactory results. He reported in 1928 more than sixty cases of schizophrenia so treated and since then the number of cases treated has been doubled.

Marriages

HOWARD W. ROGERS, Rome, Ga., to DR. ELIZABETH LYDIA COUNCILMAN of Newburyport, Mass., at Cambridge, February 10.

JOHN MILTON ADAMS, New Haven, Conn., to Miss Carolyn Frances Gaston of Washington, D. C., at New York, March 24.

JOHN LEE MONTGOMERY, Erwin, Tenn., to Miss Mayme Agnes Tucker of Johnson City, February 11.

WILLIAM LE ROY FLEMING, Enfield, N. C., to Miss Edith Mickey Duke of Rocky Mount, March 22.

BARTON MCCOSH COOKINGHAM, Rhinebeck, N. Y., to Miss Gertrude Havens of Red Hook, recently.

ROY LEE CASHWELL, Fountain Inn, S. C., to Miss Mary Sullivan West of Greenville, March 3.

FELIX WALTER SOKOLOWSKI to Miss Georgia Hale, both of Alton, Ill., at Carlinville, January 14.

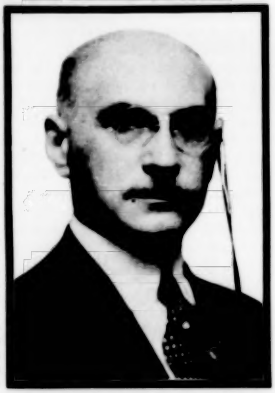
GLYNN FITZGERALD BUSHART, Fulton, Ky., to Miss Leonora Amberg of Hickman, Ky., March 10.

HENRY HARRISON GIBSON, Akron, Ohio, to Miss Anne Richardson of Sharon, Pa., recently.

VALENTINO B. DI LORETO to Mrs. Frances D'Alessio, both of Steubenville, Ohio, March 15.

Deaths

Jay Frank Schamberg ✱ professor of dermatology and syphilology, University of Pennsylvania Graduate School of Medicine, Philadelphia, and director of the Research Institute of Cutaneous Medicine, died, March 30, of heart disease. Dr. Schamberg was born in Philadelphia, Nov. 6, 1870. He graduated from the University of Pennsylvania School of Medicine in 1892, served his internship at the Hospital of the University of Pennsylvania and studied in Vienna, Paris, Berlin, Hamburg and London. He was formerly lecturer on infectious eruptive diseases at his alma mater, and professor of dermatology and syphilology at Temple University School of Medicine and Jefferson Medical College. He was a member of the American Dermatological Association and, in 1920 to 1921, president; he was also a past president of the Philadelphia County Medical Society. In 1904 he was a member of the House of Delegates, and from 1928 to 1929 chairman of the Section on Dermatology and Syphilology, American Medical Association. In collaboration with Drs. Raiziss and Kolmer, Dr. Schamberg was responsible for the synthesizing of arsphenamine in this country during the World War. He was the author of "Skin Diseases and Eruptive Fevers," and "Compendium of Diseases of the Skin," and co-author of "Acute Infectious Diseases" and "Treatment of Syphilis." Dr. Schamberg was elected to the editorial board of the *Archives of Dermatology* in 1927 to fill the unexpired term of Dr. Hartzell, who died. In February 1928 he was reelected and served until February 1934.



JAY FRANK SCHAMBERG, M.D., 1870-1934

Charles Henderson Miller ✱ Chicago; Northwestern University Medical School, Chicago, 1898; formerly a pharmacist; at one time assistant professor of pharmacology at his alma mater and professor of pharmacology and therapeutics, Bennett Medical College; aged 66; one of the founders and on the staff of the Woodlawn Hospital, where he died, March 12, of embolism, hypertension and coronary thrombosis.

Joseph G. Perrault, St. Albans, Vt.; School of Medicine and Surgery of Montreal, Que., Canada, 1898; member of the Vermont State Medical Society; past president of the Franklin County Medical Society; for twenty-five years justice of the peace; at one time member of the city council and health officer; on the staff of St. Albans Hospital; aged 61; died, January 31, of pneumonia.

Charles Galen Weston, Winter Park, Fla.; Harvard University Medical School, Boston, 1882; fellow of the American College of Surgeons; past president of the Hennepin County (Minn.) Medical Society; formerly on the staff of the Hill Crest Surgical Hospital, Minneapolis; aged 75; died, March 2, in the Victoria Hospital, Miami, of acute hemorrhagic nephritis and bronchopneumonia.

Josiah Wellington Crane, Trenton, N. J.; University of the South Medical Department, Sewanee, Tenn., 1900; member of the Medical Society of New Jersey and the American Academy of Ophthalmology and Oto-Laryngology; medical director of the New Jersey State Prison Hospital; aged 56; died, February 18, at Rochester, Minn., of gastro-intestinal fistula and bronchopneumonia.

Charles Clark Ammerman ✱ Surg., Lieut. Commander, U. S. Navy, retired, Elmira, N. Y.; George Washington University Medical School, Washington, D. C., 1906; entered the navy in 1921 and retired in 1932 for incapacity resulting from an incident of service; aged 63; died, March 20, in the United States Naval Hospital, San Diego, of chronic nephritis.

John Baker Swift, Jr. ✱ Boston; Harvard University Medical School, Boston, 1908; member of the New England Obstetrical and Gynecological Society and the New England Pediatric Society; instructor in obstetrics at his alma mater; on the staff of the Massachusetts General Hospital; aged 50; died suddenly, March 9, of heart disease.

Samuel Erskin Mitchell ✱ Muskogee, Okla.; University of Nashville (Tenn.) Medical Department, 1900; past president of the Haskell County Medical Society and the Muskogee County Medical Society; served during the World War; on the staff of the Veterans' Administration Facility; aged 61; died, February 23.

Keeton Alexander, Lockhart, Texas; Louisville (Ky.) and Hospital Medical College, 1908; member of the State Medical Association of Texas; past president of the Caldwell County Medical Society; past president of the school board of McMahan; aged 52; died, March 8, of uremia.

Rollo Orly Payne, Ontario, Ore.; Marion-Sims College of Medicine, St. Louis, 1899; Medico-Chirurgical College of Philadelphia, 1903; member of the Associated Anesthetists of the United States and Canada; for many years county coroner; aged 56; died, Dec. 25, 1933.

William Francis Flanagan, Apponaug, R. I.; Long Island College Hospital, Brooklyn, 1900; fellow of the American College of Surgeons; visiting surgeon to St. Joseph's Hospital, Providence; aged 61; died, February 20, of carcinoma of the tongue and cervical glands.

Henry Green ✱ Dothan, Ala.; Medical College of Alabama, Mobile, 1892; past president of the Medical Association of the State of Alabama and the Houston County Medical Society; on the staff of the Moody Hospital; aged 67; died, February 22, of cerebral hemorrhage.

Robert Mortimer Jones, New York; New York Homeopathic Medical College and Hospital, 1896; served during the World War; aged 63; died, February 21, in the New York Homeopathic Medical College and Flower Hospital, of hemorrhage due to gastric ulcer.

Galen Edwin Moyer ✱ Elyria, Ohio; University of Pittsburgh School of Medicine, 1917; served during the World War; on the staff of the Elyria Memorial Hospital; aged 46; died, February 3, in the Cleveland Clinic Hospital, of diabetes mellitus.

Edward Payson Crowell, Brooklyn; Long Island College Hospital, Brooklyn, 1883; member of the Medical Society of the State of New York; for many years member of the board of education; aged 77; died, February 27, of heart disease.

John Francis Dwyer, Corning, N. Y.; Ohio Medical University, Columbus, 1905; member of the Medical Society of the State of New York; on the staff of the Corning Hospital; aged 53; died, February 21, of heart disease.

Anna Sophia Windrow Holm, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; aged 73; died, March 15, of arteriosclerosis and myocarditis.

Harry Wilson Porter, Louisa, Va.; University of Virginia Department of Medicine, Charlottesville, 1896; member of the Medical Society of Virginia; aged 59; died, February 20, of cerebral hemorrhage.

George H. Harper, Monroeville, Ala.; Atlanta College of Physicians and Surgeons, 1902; member of the Medical Association of the State of Alabama; aged 59; died, February 16, of emphysema.

Carmotte Ashley Cobb, Beaumont, Texas; Tulane University of Louisiana Medical Department, New Orleans, 1902; served during the World War; aged 57; died, February 25, of myocarditis.

Alexander L. Mathews, Callaway, Neb.; Eclectic Medical Institute, Cincinnati, 1882; member of the Nebraska State Medical Association; aged 84; died, February 12, of hypostatic pneumonia.

John Milton Messinger, Oakfield, N. Y.; University of Buffalo School of Medicine, 1923; aged 34; died, February 25, in the Glockner Hospital, Colorado Springs, following an operation.

Charles Andrew Haas, St. Paul; University of Minnesota College of Medicine and Surgery, Minneapolis, 1894; aged 59; died, January 22, in St. John's Hospital, of carcinoma of the stomach.

Ernest Chandos Blackwell, Los Angeles; Bellevue Hospital Medical College, New York, 1895; aged *62*; died, January 20, of chronic osteomyelitis of the left femur and myocarditis.

John Benjamin Wrightsman, Denver; National Normal University College of Medicine, Lebanon, Ohio, 1890; aged *77*; died, February 21, of chronic myocarditis and nephritis.

Lester Orlo Houghten, Ironwood, Mich.; University of Michigan Medical School, Ann Arbor, 1906; fellow of the American College of Surgeons; aged *52*; died, March 15.

George Norfleet Harrell, Grimesland, N. C.; University College of Medicine, Richmond, Va., 1907; aged *52*; was found dead in his office, February 16, of cerebral hemorrhage.

John H. Hammond, Georgetown, Del.; Medico-Chirurgical College of Philadelphia, 1889; aged *65*; was found dead, February *22*, with a bullet wound in the head.

Cassius Harriot Darling, Worcester, Mass.; University of the City of New York Medical Department, 1883; aged *74*; died, February *28*, of cerebral hemorrhage.

William R. Hamilton, Weiser, Idaho; Victoria University Medical Department, Coburg, Ont., 1892; formerly mayor; aged *67*; died, February 13, of erysipelas.

Clayton S. Woolston, Spencerport, N. Y.; University of Buffalo School of Medicine, 1897; aged *60*; died, February 5, in St. Petersburg, Fla., of angina pectoris.

William Frazier Tifft, Long Beach, Calif.; University of Vermont College of Medicine, Burlington, 1880; aged *78*; died, January 14, of carcinoma of the prostate.

Fischer Randall Jordan, Oakland, Calif.; Cooper Medical College, San Francisco, 1895; aged *60*; died, January *26*, of chronic prostatic staphylococcus infection.

John Spencer Gallagher, Salem, Ohio; Western Reserve University Medical Department, Cleveland, 1887; aged *72*; died suddenly, February 21, of heart disease.

J. F. J. Hood, Atlanta, Ga.; Atlanta College of Physicians and Surgeons, 1901; aged *65*; died, February 19, in the Grady Hospital, of pulmonary tuberculosis.

John Arrington, Blevins, Ark.; licensed in Arkansas, year unknown; aged *57*; died, February *2*, in the Donnell Hospital, Prescott, of cerebral hemorrhage.

Sharon C. Newell, Helena, Mont.; Columbus (Ohio) Medical College, 1880; aged *77*; died, January *2*, in St. Peter's Hospital, of chronic myocarditis.

David Hunter McAlpin ✱ Morris Plains, N. J.; Bellevue Hospital Medical College, New York, 1888; aged *72*; died, January *20*, of arteriosclerosis.

James Winfield Sampsel, Penns Creek, Pa.; Jefferson Medical College of Philadelphia, 1878; aged *82*; died, February *28*, of cerebral hemorrhage.

Andrew Harrison Weber, Chicago; Drake University Medical Department, 1895; aged *67*; died, February 17, of organic heart disease.

W. A. Hawkins, Dallas, Texas (licensed, in Texas, under the Act of 1907); aged *50*; died, Nov. 15, 1933, of gas poisoning, self-administered.

Thomas Hugh G. Cook, Weslaco, Texas; Medical College of Alabama, Mobile, 1886; aged *68*; died, February 18, of chronic endocarditis.

George Zinn, Klemme, Iowa; Physio-Medical College of Indiana, Indianapolis, 1897; aged *66*; died suddenly, January *29*, of heart disease.

Uriah Edward Bateson, London, Ont., Canada; Trinity Medical College, Toronto, 1889; aged *67*; died, January 30, of heart disease.

Anderson P. Barclay, Wharton, Texas; Memphis (Tenn.) Hospital Medical College, 1901; aged *67*; died, January 10, of heart disease.

Warren Burd West, St. Anthony, Idaho; Missouri Medical College, St. Louis, 1897; aged *64*; died, Dec. 18, 1933, of heart disease.

Claude Reznor Leech ✱ Walnut Creek, Calif.; Cooper Medical College, San Francisco, 1894; aged *65*; died, January 13.

William Bell Wood, South Pasadena, Calif.; Missouri Medical College, St. Louis, 1875; aged *82*; died, February *25*.

M. D. Empson, Galatia, Ill.; Missouri Medical College, St. Louis; 1882; aged *77*; died, March 6, of hypostatic pneumonia.

Wilmot Leland Ransom, Rockford, Ill.; Chicago Medical College, 1874; aged *81*; died, March 12, of lobar pneumonia.

Correspondence

POSTERIOR PITUITARY IN PYELITIS

To the Editor:—The interesting article of Ward Darley and W. B. Draper in THE JOURNAL (March 3, p. 677), emphasizing atony of the musculature of the renal pelvis and ureter with the resultant sluggish drainage as an important factor in the development and course of pyelitis, refers to the experimental work of Gruber. He showed that the ureteral muscle responds with increased peristalsis to solution of pituitary (*J. Urol.* **20**:27 [July] 1928), as they confirmed (*J. Urol.* **26**:1 [July] 1931).

At the meeting of the American Gynecological Society in 1927 I presented a preliminary report of work done at Johns Hopkins on the etiology of pyelitis gravidarum, in which the occurrence of dilatation and atony of the upper urinary tract as physiologic phenomena in pregnant woman was stressed. The use of solution of pituitary was suggested for stimulating ureteral peristalsis in cases of pyelitis gravidarum that do not yield to the routine treatment of forcing fluids and administering alkalis. Reports of the work were published in the *Bulletin of the Johns Hopkins Hospital* (**42**:118 [March] 1928) and in the *Journal of Urology* (**20**:413 [Oct.] 1928). The article by Gruber quotes my experimental data. The use of postpituitary was advocated by me also during the puerperium in cases of pyelitis as an attempt to forestall the persistence of ureteral dilatation which, in my series, was observable in about 45 per cent of cases of pyelitis for months or years after the termination of labor. Recently I substituted ampoules of pitressin for the original solution of pituitary in order to eliminate the oxytocic factor. For the last few years, I have been using ampoules of pitressin in addition to ureteral catheterization in selected cases of pyelitis in order to obtain prompt relief.

J. I. HOFBAUER, M.D., Cincinnati.

STANDARDIZATION OF DIGITALIS

To the Editor:—I was much interested in the communication published in THE JOURNAL, March 17, and purporting to come from the Heart Committee of the New York Tuberculosis and Health Association, although it is signed by the "Digitalis Committee." Whether these two committees are in reality two or whether they are one and the same under different names I am unable to say. Before discussing the contents of the communication I would point out that it should more properly have been addressed to Professor Cook, the chairman of the U. S. Pharmacopeial Revision Committee, which has the matter of biologic standardization of digitalis and other drugs in charge, and it would doubtless have been referred to the proper subcommittee, where I am sure it would have received careful and sympathetic consideration. However, I am tempted to consider some of the points raised by it, as they have been for some time a source of considerable anxiety to many of us who are interested in and are working for simplicity and accuracy in the act of prescribing.

The committee is correct in stating that a frog method is official in the U. S. Pharmacopeia. The reason for this lies in the fact that three subcommittees of the U. S. Pharmacopeia, viz., the committees of the 1910 revision, the 1920 and now the 1930 revision have voted unanimously to include a frog method of assay in preference to a cat method. These three committees were in each case composed of medical men, pharmacologists and pharmacists who had special interest in and knowledge of the biologic standardization problem. The decision in the case of each of the three revisions has been made by the different committees after one or more meetings with representatives of the large pharmaceutic houses engaged in biologic standardization of their products. In not one instance, as my

memory serves me, and I have been chairman of these subcommittees since the 1910 revision, has a single manufacturing pharmacist advocated the adoption of a cat method of assay. As a matter of fact, at each of these combined meetings pharmacist after pharmacist has said that it would be practically impossible for his firm to carry out such assays on cats, as they could not get enough animals to meet all their needs. It is one thing to assay a powder for one limited group of specialists and quite a different problem to assay the products of a large manufacturing house supplying perhaps a nation-wide demand for its digitalis, to say nothing of the trade beyond the seas. If the pharmacists are so dissatisfied with a frog method of assay and are anxious for a cat method, why have their representatives for twenty-five years voted unanimously against the adoption of a cat method? At our conferences not one manufacturer has urged its adoption.

The statement that the majority of pharmacologists favor the cat method is equally open to serious question, not to make a stronger statement. Where did the "Committee" secure this information? To the best of my knowledge such a question has never been put up to the Pharmacological Society or to any authorized group of pharmacologists. I imagine the nearest approach to such a group consideration of the question would be the pharmacopeial subcommittee on biologic standardization, which includes several pharmacologists, and it has voted unanimously against the cat method. But even in this group there are relatively few pharmacologists. In other words, no one knows—the "Committee," I or any one else—what the majority of pharmacologists do favor, for to the best of my knowledge they have never expressed an opinion nor even have been asked to do so. Certain individual pharmacologists have expressed opinions pro or con but I would say comparatively few—certainly not so that any one can say what the "majority" of pharmacologists favor.

However, there is another aspect of the matter which is of grave importance as tending to therapeutic confusion. This is the use of the term "cat unit." Why should such terms be in use at all? What is gained except confusion? The only object in carrying out an assay, be it chemical or biologic, be it by frog or by cat, is to secure to the physician and patient a uniform potent preparation. It cannot in any way be used as an index to the amount of a drug to be given a patient. There is therefore no occasion or logical reason for the use of the term "cat unit." Other drugs are given in grams or grains, cubic centimeters or minims. Why, then, coin a new system of weights and measures for digitalis? But the evil has gone even beyond this. There are now not only cat units but "international cat units," and one is led to wonder how many practicing physicians, to say nothing of cardiologists, know the difference between the two. As if these were not enough, there are "frog units" of digitalis, "heart tonic units" and "guinea-pig units" and all equally illogical as the cat unit, national or international. Could confusion be worse confounded? There might with equal logic be cock units of ergot, dog units of cannabis, dog units of epinephrine solution and so on ad nauseam. There is nothing scientific about such a system. What general practitioners and cardiologists want, I repeat, is a uniformly potent preparation of digitalis. Neither cares really how this is obtained, whether on a cat, dog or frog. And he can get this uniform preparation by prescribing a pharmacopeial tincture made by some one of the firms in whose products he has confidence. They should know that in prescribing such a pharmacopeial tincture they will get one that is constantly under government supervision and control.

Finally, in what I have written I hope I have made the position of the Pharmacopeial subcommittee clear. It is grateful for criticisms and suggestions. It is unfortunate that not one of the signers of the Committee's communication found it convenient to attend the Pharmacopeial convention in 1930 when the Revision Committee was selected. Without any doubt any one of them could have been elected a delegate to the convention if he had expressed the slightest desire and he would then have been eligible for election to the Revision Committee and if so elected could have served on the Subcommittee on Biological Standardization, where his knowledge and experience would have been of tremendous help in solving a very difficult problem.

C. W. EDMUNDS, M.D., Ann Arbor, Mich.
Chairman of the Subcommittee on Biological Standardization of the U. S. Pharmacopeial Revision Committee.

To the Editor:—The digitalis committee (THE JOURNAL, March 17, p. 862) endorses the cat method for the standardization of digitalis and gives some valuable information concerning it. It then states that tablets of digitalis leaves made up to the strength of 1 cat unit, ½ cat unit and 2 cat units have proved satisfactory in clinical use. Also liquid preparations of digitalis should be put up so that 1 cc. contains the equivalent of 1 cat unit.

I should like to ask: In clinical work why not leave the cat in the laboratory? What clinicians want is an assured active preparation. Most of them do not know what a cat unit means, and why should they be asked to remember it? It adds only to confusion to say that 1 cc. contains a cat unit. If the cat must be mentioned, it would be sufficient to state that the preparation was standardized by the cat method.

H. A. MCGUIGAN, M.D., Chicago.

[The letter of Dr. McGuigan was referred to Dr. Levy, who replies:]

To the Editor:—The suggestion of Dr. McGuigan that the cat be "left in the laboratory" is, unfortunately, not feasible. The dosage of any form of medication must be gaged by its potency. When the chemical composition of a drug is known, the dose can be expressed in terms of weight or volume. But equivalent weights or volumes of digitalis preparations are not necessarily equal in potency. In the case of biologically standardized products there must be some unit of strength by which the effects on man may be estimated. The term "unit" is one with which the practitioner is already familiar and which he employs daily in prescribing insulin, diphtheria antitoxin and the vitamin products. A unit there must be; and since, in the assay of digitalis, various methods are still in use, accuracy of definition makes it necessary to refer to the "cat unit."

ROBERT L. LEVY, M.D., New York.
Chairman, Digitalis Committee.

HODGKIN'S DISEASE IN BROTHERS

To the Editor:—In THE JOURNAL, February 17, McHeffey and Peterson reported two cases of Hodgkin's disease occurring simultaneously in brothers. Reference was made to the rarity in which this condition occurs in more than one member of a family. I wish to report another instance of two cases occurring in brothers:

A. C., a man, aged 32, came to the surgical dispensary at Northwestern University Medical School, April 13, 1931, complaining of a swelling in the right axilla of one year's duration. Examination at that time revealed several indurated discrete axillary nodes. There was moderate enlargement of the spleen. The blood count indicated 6,125 white blood cells, with a normal differential count save for 3 per cent eosinophils, and 4,760,000 red blood cells with 85 per cent hemoglobin. The patient stated that a biopsy had been made three months previously at Epworth Hospital, South Bend, Ind. A laboratory report subsequently

obtained from the Epworth Hospital furnished pathologic evidence of the diagnosis Hodgkin's disease. The patient was given three courses of roentgen treatments with temporary benefit but died in March 1934. At that time there was involvement of the cervical nodes along the posterior border of the right sternomastoid muscle and roentgenographic evidence of enlargement of the mediastinal nodes.

When first examined, the patient stated his brother, H. C., had died of Hodgkin's disease seven years previously at the age of 27. Diagnosis was made at the University of Michigan hospital. A report obtained from the University of Michigan is as follows: "On examination it was found that there was an enlargement of the lymph glands, more marked on the left side of the body, especially in the cervical region. The liver was found to be slightly enlarged and the spleen was large and firm. Laboratory examinations showed a marked increase of mononuclears and transitionals. The final diagnosis was Hodgkin's disease." He later was given roentgen treatment but died three years after the first glandular enlargement was discovered. The diagnosis was confirmed by subsequent biopsy at the Epworth hospital in South Bend.

W. KENNETH JENNINGS, M.D., Winnetka, Ill.

USE OF OTOSCOPE FOR UMBILICAL EXAMINATION IN OBESITY

To the Editor:—I wish to make a simple suggestion which I have found of considerable value to me on two occasions in the past few weeks in rather difficult examinations. Recently two obese women whom I saw complained of intermittent, purulent, excoriating discharges from the umbilicus. Each had had previous surgery done. Because of the obesity the umbilicus could not be everted in the usual manner, and so I used an ordinary electric otoscope with a rather large speculum, which gave a perfect view of the floor and side wall of the umbilical cavity, and in one patient showed a tiny sinus in the floor, discharging pus.

In view of the marked difficulty that I have previously experienced in examining this type of patient, I thought this suggestion worth passing along.

H. V. FINDLAY, M.D., Santa Barbara, Calif.

BRONCHIAL ASTHMA IN PREGNANCY

To the Editor:—After reading the paper entitled "Bronchial Asthma as a Complication of Pregnancy," by Dr. Bradford Green (THE JOURNAL, February 3, p. 360), I feel that a comment made from a different angle is proper. The obstetrician is naturally struck by the aggravation of asthma during pregnancy, for it offers a disturbing complication to him. This may lead him to a broad conclusion, as "in a patient with true bronchial asthma of anaphylactic origin, the attacks are markedly exacerbated by pregnancy." However, to the internist interested in allergy, cases of equal interest are those in which allergic manifestations disappear during pregnancy.

That this occurs was first demonstrated to me nine years ago while supervising the allergy work in the department of internal medicine at the University of Michigan. The first patient with such a story was a highly educated, intelligent woman who had been through four or five pregnancies, with freedom from both asthma and hay fever during such times. The recollection of this case is vivid because she reiterated that she welcomed pregnancy because of freedom from allergic symptoms. Since then I have had a number of cases in which there was relief from asthma, hay fever and allergic migraine during pregnancy. In order to meet the argument that these manifestations may have been associated with the menstrual period and so relieved during pregnancy, it should be stated that the patients have been proved sensitive to foods or pollens, with no relation to menstruation. This is proved to a nicety by the fact that a seasonal manifestation of allergy, such as hay fever, recurring yearly, may be absent entirely if pregnancy includes the months of hay fever incidence. I shall not go into speculations on the interesting fact that pregnancy may have a favorable effect on allergic responses.

I feel that the practitioner should realize that, though in some patients pregnancy may aggravate allergic manifestations, in others it may have the opposite effect.

R. H. KAMPMEIER, M.D., New Orleans.
Assistant Professor of Medicine, Louisiana State University Medical Center.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MENSTRUATION, OVULATION AND THE SAFE PERIOD

To the Editor:—I am unable to understand just what you regard as the safe period in the menstrual cycle. On page 861 of the March 17 issue of THE JOURNAL Dr. Emil Novak says "there is no difference between the Knaus plan of counting forward ten to seventeen days from the first day of the preceding period to derive the safe span, and the Ogino method of counting back twelve to nineteen days. . . ." On page 864 of the same issue, under "Sterility and Artificial Insemination," you say the most favorable time to carry out this procedure is the ten days that occur midway between the menstrual periods. On page 864, under "Diagnosis and Treatment of Aspermia," you say that the best time to inject the spermatozoa is shortly after the cessation of menstruation. Of course, all this is confusing as to when you mean the safe span is. But to complicate it, Dr. G. L. Moench on page 866 states that the spermatozoa live for two weeks or so in the uterus and tubes. So how can you consider any time as being safe with that possibility?

EDWARD P. LEEPER, M.D., Dallas, Texas.

ANSWER.—An examination of the various sources of information quoted by the correspondent reveals no conflict of views to justify the quandary under which he is apparently laboring. In the letter of Dr. Emil Novak, on page 861, the ovulation period (i. e., the period that is not "safe") is given as embracing the span between the tenth and seventeenth days of the twenty-eight day cycle, although, in his original paper in THE JOURNAL (February 10, p. 452) Novak believes it safer to consider the "dangerous" period as extending from the eighth to the twentieth days.

In the answer to the query on page 864 the round statement is made that the most favorable time for artificial insemination is the ten days midway between the periods, and this is explained, in the next sentence but one, by the statement that "ovulation may occur at any time from the tenth to the eighteenth days of the cycle," virtually the same period emphasized by Novak.

In answer to the query on aspermia (p. 864) the statement is made that artificial insemination should be done "shortly after the cessation of menstruation," and this is not very explicit. From what has been said as to the usual time of ovulation, this procedure would be more likely to be successful if carried out after the eighth or tenth day of the cycle. It is possible that ovulation might occasionally occur just after menstruation, but this is certainly not the rule.

Finally, the correspondent has obviously read incorrectly Dr. G. L. Moench's note (p. 866) as to how long the spermatozoon retains its potency after its entrance into the female genital canal. He explicitly states that "the limit is certainly not more than thirty-six to forty-eight hours," about the same as quoted by Novak from Ogino and Knaus. The little witticism cited by Moench, with its delicate innuendo on feminine chastity, has apparently been lost upon the correspondent. It is again submitted to him for careful study and analysis, with one grammatical improvement which may make it clearer. "The presence of living sperms in the female genital canal allegedly two weeks after intercourse is no longer a scientific question but a moral issue."

With one exception all the authors quoted by the subscriber, therefore, are in essential accord as to the time at which ovula-

tion occurs, and as to the duration of potency in the male sperm. These two factors, together with the now generally accepted view that the life of the extruded ovum is short, constitute the basis for the concept of a "safe period," and this is apparently supported by considerable clinical evidence. However, as Novak has emphasized, it would be premature to consider the question closed or to regard this method of birth control as infallible, as some authors seem inclined to do.

SYPHILIS AND PREGNANCY

To the Editor:—A white woman, aged 26, married three years, inquires as to the advisability of becoming pregnant. She is in good health, has never had any symptoms of syphilis, and has always had a negative Wassermann reaction. Her husband, aged 30, contracted syphilis presumably about eight years ago. It was undiagnosed until two and one-half years ago, when he was found to have a 4+ blood Wassermann reaction. Treatment by means of two courses of neoarsphenamine and sodium bismuth thioglycollate was administered. The blood Wassermann reaction remained positive, and a test of the spinal fluid was found to be 4+. The colloidal gold curve was tabetic. Two courses of tryparsamide and iodobismitol were given. The blood and spinal fluid are now negative in all respects. The patient has had lightning pains of moderate severity for about two years. These have become less frequent since the last two courses of treatment. There have been two attacks of abdominal pain believed to be tabetic crises. The reflexes and all eye phenomena are normal, the general condition is good, and there are no other symptoms. Is there any danger of the wife's contracting the disease if she becomes pregnant; that is, could it be transmitted to her in the semen? What are the chances of syphilis in the child? I should also appreciate any suggestions you could give for the further medical management of the husband. Please omit name and address.

M.D., Illinois.

ANSWER.—In view of the frequency of conjugal and hereditary neurosyphilis it would seem inadvisable for this patient to become pregnant. The question of whether or not there is a special strain of spirochetes that has a predilection for the nervous system is still being debated. There is a definite danger of the wife's contracting the disease if she becomes pregnant. Even if the child should not show active syphilis at birth, it might show evidence of a neuropathic heredity in later life. The possibility of such conditions as hydrocephalus, juvenile tabes, idiocy and imbecility should be borne in mind. The prognosis in tabes with a markedly positive Wassermann reaction of the blood and spinal fluid is not good, even though the manifestations have become negative under treatment. Whereas a certain percentage of cases may remain quiescent or may be arrested by active treatment, the majority of cases presenting lightning pains and tabetic crises are progressive and sooner or later ataxia, bladder symptoms or ocular disturbances develop. The medical management of tabetic cases presents many problems. As long as treatment with tryparsamide and iodobismitol has proved beneficial, it should be continued. Between courses, mercurial inunctions and iodides may be administered. The eyes should be frequently checked by a competent ophthalmologist. Hydrotherapy, massage, fever therapy and reeducation methods have a limited use in the management of advanced tabes.

TRICHINOSIS

To the Editor:—What is the possibility of the introduction of trichinosis through an open wound? The larvae of the trichina were found in blood smears within two weeks after a large lacerated skin wound had been received. There were no referable gastro-intestinal symptoms, and the patient was absolutely certain that no form of pork had been eaten. Please omit name.

M.D., New Jersey.

ANSWER.—There does not seem to be any evidence that human trichinosis has been introduced into the body through wounds of the skin. The entrance of adult impregnated trichinae through such a wound is, however, not inconceivable, and it is of interest to note that in susceptible animals the injection of female trichinae with mature embryos may be followed with muscular invasion by the embryos (Berger, E., and Stähelin, A.: *Centralbl. f. Bakt.* (abt. 1) **107**:377 [June 20] 1928; **111**:144 [Feb. 16] 1929. Doerr, R., and Schmidt, G. W., ibid. **113**:271 [July 30] 1929). This result has been obtained on injection of female trichinae directly into the muscle as well as into the circulation. Demonstration of trichinous larvae in the blood makes the case in question one of unusual interest. The first and apparently so far the only other demonstration of trichinous larvae in the circulating blood in man is by W. W. Herrick and Theodore C. Janeway (Demonstration of Trichinella Spiralis in the Circulating Blood in Man, *Arch. Int. Med.* **3**:263 [April] 1909), who found them in fresh samples of blood after laking with 3 per cent acetic acid.

DERMATITIS FROM SPUN GLASS CHRISTMAS TREE ORNAMENTS

To the Editor:—I recently came in contact with a dermatitis of the hand. The patient attributes the condition to the handling of some Christmas tree ornaments made of spun glass. These Christmas tree ornaments go under the name of "angels' hair." They are manufactured by the Strauss Eckhardt Company, Inc., 35 East Seventeenth Street, New York. The dermatitis was of the trichophytosis type. I should be grateful for your opinion as to whether or not there have been other complaints of a similar character; i. e., occurrence of a dermatitis from the handling of this article.

C. N. RAMSAY, M.D., Cleveland.

ANSWER.—No record of a similar case, nor any sort of dermatitis from spun glass, has been found. The Strauss Eckhardt Company imports "angels' hair" from Germany and in response to an inquiry states the belief that it is made of glass alone. The company does not know anything about the process of manufacture but expects further information from the manufacturers. To date this has not been received. It is possible, of course, that mechanical irritation from fine glass might cause a dermatitis if it was handled a great deal, but it is unlikely that it would cause a vesicular dermatitis resembling eczematoid ringworm.

The question of mechanical irritation can be tested by rubbing a small area of skin with the "angels' hair" and another small area with some neutral substance, such as the back of a steel or silver (not nickel) knife blade. Both methods should cause a patch of dermatitis if the dermatitis is a mechanical one. If there is some irritant other than glass, the area rubbed by the glass would cause a dermatitis, the other not. Then a patch test with a small portion of the "angels' hair" should be made, covered with a square of oiled silk, oiled paper, rubber dam or gutta percha and fastened with adhesive tape. After two days the result can be read according to the presence or absence of dermatitis on the area touched by the "angels' hair." If a positive reaction is obtained, a report of the case should be made.

PROPHYLAXIS OF AMEBIASIS

To the Editor:—The recent articles on amebiasis leave one thing to be desired; namely, prophylaxis. It seems incredible that such an epidemic as that in Chicago could have come from such gross carelessness of personal hygiene as would have occurred on the part of an employee, and one wonders whether some garden that furnished the hotel with salad vegetables might not have been fertilized with human excreta. How can lettuce and celery be cleaned to make them safe to be eaten raw? If a person with amebiasis should accidentally contaminate his fingers, how would he proceed to disinfect them? Would there be danger to the family from lavatories, faucets and towels? Please omit name.

M.D., California.

ANSWER.—Soon after cases of amebiasis were recognized in Chicago in 1933, careful inquiries proved that the vegetables bought by the hotel in question came from the same markets as those of other hotels in which cases of amebiasis did not occur. General inquiries regarding the source of all vegetables sold in the markets failed to reveal evidence of fertilization with human excreta.

Lettuce and celery, if thoroughly washed in rapidly flowing, pure water, should be safe for eating raw.

Persons with amebiasis should pare the nails close to the fingers. The hands, and especially the fingers, should be thoroughly scrubbed with a nail-brush frequently, and always after using the toilet. The hands should then be dipped either in a weak solution of cresol or in alcohol before drying.

With reasonable care, there should be no danger to the family from lavatory or faucets. But an infected person should have a towel exclusively for his own use and kept free from reach of other members of the family.

EDEMA OF EYELIDS

To the Editor:—A male patient with bilateral, non-nephritic edema of the eyelids, upper and lower, is desirous of having something done. There is no history of irritation. Please omit name.

M.D., Massachusetts.

ANSWER.—First the cause should be found, if that is possible. In some of these cases, chronic inflammatory conditions in the accessory nasal sinuses are responsible for the edema; in others, the edema may be a local manifestation of generalized trichinosis; again, there may be a localized dermatitis of the upper and lower lids underlying the edema and, in many of the cases, no demonstrable cause can be found. If the usual treatment is unavailing and the disfigurement is considerable, oval or crescentic strips of the skin may be excised from the upper and lower lids, provided not too much is removed.

ENDOCRINE OBESITY

To the Editor:—A woman, aged 26, came to me on account of obesity and amenorrhea. Her childhood history is negative except for chickenpox and measles. The father is heavy set and has diabetes. One sister, slightly older than the patient, is also considerably overweight, and a brother has a tendency toward obesity. The patient is short. Menstruation began at the age of 12 and has always been irregular, from a few days to one month when it first began. Later it lasted four or five days, with a profuse flow, no clots and no backaches or pain. The last period was more than two years ago, previous to her marriage, since which time she has not menstruated. The discharge is yellowish. The patient has no libido but gets ordinary satisfaction from sex relations. She states that formerly when she went a couple of months without menstruating she gained weight, which was lost when she began menstruating. She tires easily, has spells of nausea and cramps and is not short of breath. Constipation alternates with diarrhea. She has not been able to conceive. She is 59 inches (150 cm.) in height and weighs 256 pounds (116 Kg.). She states that before her marriage she weighed 140 pounds (63.5 Kg.) and has gained 25 pounds (11.3 Kg.) in the last three months. She is very intelligent. She has a small amount of hair on the upper lip and face, which has increased in the last two years. Her teeth are far apart. Obesity seems to be more pronounced on the shoulders and abdomen. The genitals are fairly normal in size. The uterus cannot be felt, owing to the extreme obesity. The breasts are larger than usual. Roentgen examination shows a normal sella turcica, but the frontal sinuses are underdeveloped. Laboratory examinations show normal blood chemistry and urine. The Wassermann reaction is negative. The basal metabolic rate is plus 3.08 per cent. An electrocardiogram showed a deep Q in the third lead, which usually is significant of myocarditis. I have placed the patient on a 1,500 calory diet list and given her desiccated thyroid and the anterior pituitary-like principle from the urine of pregnancy, in the hopes of making her menstruate. In seven weeks she has lost 24 pounds (11 Kg.) but so far has not menstruated. Previous treatments with injections of progesterone have also failed to bring menstruation. This is beyond question a pituitary disturbance with, no doubt, a family predisposition to glandular dysfunction. I have given her thyroid principally because her heart rate was 70 and blood pressure 120, and the fact that the basal metabolic rate is plus 3, for such a person is below normal, in view of her surface area. Suggestions toward reducing the patient scientifically, and also with respect to bringing about menstruation, will be greatly appreciated. Would you advise using dinitrophenol in such a definite glandular case? Please omit name.

M.D., Missouri.

ANSWER.—The case is compatible with a hypofunction of the anterior pituitary gland, resulting in a decreased gonadal activity. The treatment seems adequate from the standpoint of weight reduction. However, it would be advisable to continue the use of either of the estrogenic preparations used until, and for some time after, the weight has returned to normal, before passing final judgment on their adequacy. In view of the patient's apparent resistance to the action of these endocrine preparations, it might be better to administer them in short courses, allowing rest periods in between. There is nothing to be gained by the use of dinitrophenol.

TOXICITY OF ETHYLENE DICHLORIDE AND OF TRICHLORETHYLENE

To the Editor:—One of our local firms is using ethylene dichloride in manufacturing its adhesive line, consisting of library pastes and glues. There is a chloroform-like odor, which has several times nauseated an employee or two. I should like to know whether there is any harm that might arise from this.

M.D., Iowa.

To the Editor:—I am interested in obtaining some information on the relative toxicity of ethylene dichloride ($C_2H_4Cl_2$) and trichlorethylene (C_2HCl_3) and any health hazards attendant on the use of these solvents for industrial purposes. I note in THE JOURNAL, April 16, 1932, page 1401, a statement in reply to an inquiry that ethylene dichloride is more toxic than trichlorethylene. I would appreciate receiving any information that the Association may have as to specific tests on the relative toxicity of these two products.

L., New York.

ANSWER.—Ethylene dichloride ($C_2H_4Cl_2$) is a member of a group of chlorinated hydrocarbons and is similar to carbon tetrachloride, trichlorethylene and chloroform. All these substances are toxic. The order of its toxicity may be inferred from the following list of various solvent intoxicants in terms of diminishing toxicity: benzene, ethylene dichloride, trichlorethylene, carbon tetrachloride, gasoline (boiling point 90 C.), naphtha and Stoddard's solvent.

Ethylene dichloride has come into fairly extensive use as a solvent and extractive. Toxicity begins at about 500 parts of the vapors of ethylene dichloride per million of air. Manifestations are similar to those from carbon tetrachloride. These usually begin with nausea, headaches, mild respiratory irritation and diarrhea but culminate in gross injury (which may be temporary) to the liver with symptoms of, or simulating, guanidine poisoning.

In 1932 the department of industrial relations of the state of Ohio found itself involved in litigation with reference to its code governing dry cleaning operations. In hearings, extensive data were presented, concerning the relative toxicity of carbon tetrachloride, ethylene dichloride and trichlorethylene. This material has not been published beyond the point of hearing records.

A part of the testimony consisted of the presentation of the results of animal experiments in which the substances mentioned had been tested by respiratory administration and by skin application. In this work rabbits were utilized as experimental subjects. The rabbit is perhaps not as well suited for this type of experimentation as are dogs or monkeys.

Exposure was provided to various concentrations of vapors, and various quantities of the liquid were applied to the skin. Certain animals promptly died; others in the lower concentration series were killed. All were examined post mortem, together with suitable controls. As lower concentrations of ethylene dichloride either killed animals more rapidly than trichlorethylene, or the extent of damage found at autopsy was greater, the conclusion was reached that the former is more toxic for rabbits than the latter. However, it was emphasized that the general order of toxicity was not greatly dissimilar.

It is not known that the results of these experiments will be published. Correspondence with the department at Columbus, Ohio, may lead to these records becoming available. Since this was a matter of litigation, it is likely that conflicting testimony may have been presented, which also will appear in hearing records.

INFILTRATION ANESTHESIA FOR CURETTAGE OF UTERUS

To the Editor:—Please describe a method of carrying out direct infiltration anesthesia for curettement of the uterus. You mentioned it under "Herpes After Spinal Anesthesia for Curettement." Please omit name.

M.D., Ohio.

ANSWER.—The patient should be given a hypodermic injection of 16 mg. of morphine and 0.3 mg. of scopolamine about forty-five minutes before the infiltration is to be begun. The narcosis due to morphine persists for a variable length of time after the operation is ended and this usually insures that the patient will sleep or at least be comfortable for some time after the operation.

The surgical preparation of the vagina is, of course, the same as when inhalation anesthesia is employed. The patient should be made as comfortable as possible during the operation. Hence abundant pillows should be placed on the operating table, especially under the back and around the shoulders where braces are usually applied. For the local anesthetic, 0.5 per cent of procaine hydrochloride is used. To this solution after sterilization, two drops of 1:1,000 epinephrine are added for each ounce. About 175 cc. of solution is prepared.

The technic for dilation and curettement is as follows: A narrow retractor is used to depress gently the posterior vaginal wall. If the patient has a narrow vagina or a rigid perineum, solution should also be injected into the perineum as follows: The needle is inserted about midway down one labium majus and solution is injected all along the edge of this labium, then across the fourchette and up the edge of the other labium majus. It is usually necessary to remove and reinsert the needle a few times, but one must always reinsert the needle in an area that has already been infiltrated. With Allis forceps, slight traction is then made on the infiltrated fourchette and solution is injected into the layer between the vaginal wall and the rectum not only in the median line but also well out to the sides in the shape of a fan. The needle is inserted about 5 cm. in each direction, and about 30 cc. of solution is distributed in this space. In some cases it is necessary to insert the needle deeply through the fascia over each levator ani muscle and inject about 10 cc. of solution into the muscles and fascial layers. Then the cervix is grasped with a tenaculum and gently pulled down and to the right side. The needle, which should be long and flexible, is then inserted into the left parametrium by following closely along the cervix for a distance of from 2 to 3 cm. If any resistance at all is met, the needle has most likely penetrated the cervix. In this case it should be pulled back slightly and then inserted a little more laterally. After the needle is in the parametrium, the plunger should be pulled up slightly to make certain that the needle has not entered a blood vessel. If no blood appears in the barrel of the syringe, about 10 cc. of solution is injected slowly and with the needle constantly but gradually being withdrawn. The same procedure is carried out on the right side of the cervix. The procaine hydrochloride in the parametrium blocks the large sympathetic ganglions of Frankenhäuser, which are situated at the upper portion of the cervix. The local anesthesia produces blanching of the vaginal mucosa round the cervix. If parts of the vaginal epithelium are not blanched, it is best to inject about 5 cc. of solution into the space between the cervix and the bladder and between the cervix and the rectum. It is a good plan to administer a hypodermic

injection of solution of pituitary when the operation is begun in order to insure a minimal loss of blood from the uterus.

After waiting about five minutes it will be found that the cervix is soft enough to permit easy dilation without pain. Curettement is likewise a painless procedure and there is little bleeding. The uterus retains its tonicity even if solution of pituitary is not used. Occasionally the patient experiences slight pain when the corners of the uterus are curetted. One should not undertake to curet the uterus without a thorough knowledge of its anatomy or without an understanding of pathologic conditions that may be present.

TALIPES EQUINUS VARUS

To the Editor:—I have an infant patient now nearly 2 months old whom I have been treating since birth for congenital talipes equinus varus. At the outset I utilized fixation and overcorrection simply by strapping with adhesive plaster. For the past month I have been using a metal splint which I remove at frequent intervals and massage the extremity. At this time there is evident improvement. How long should this treatment be continued? Would a plaster cast be more advisable? I want to avoid atrophy of the leg muscles. Can my present treatment be improved, and what is the prognosis where early treatment is employed? Please omit name.

M.D., Illinois.

ANSWER.—Improvement must be continued until overcorrection is obtained, until the foot can be put in the overcorrected position by a moderate amount of pressure by the surgeon's fingers holding the leg just above the ankle and gently forcing the foot in the overcorrected position by the application of the index finger. A plaster-of-paris cast would undoubtedly be more advisable, but it should be applied by a trained physician, preferably an orthopedic surgeon. The present treatment can be improved by calling an orthopedic surgeon in consultation. If no additional measures are necessary, assurance can be felt that everything possible is being done for the patient.

The prognosis in congenital talipes is excellent, depending on (1) early diagnosis, (2) early treatment, (3) persistent treatment and (4) cooperation of the surgeon, parents or nurse, and later of the patient. Overcorrection should be obtained and maintained until functional use (walking in the overcorrected position) makes the correction permanent.

SIMULTANEOUS IMMUNIZATIONS

To the Editor:—Can one administer all the toxins and antitoxins and vaccines at the same time? (I am referring especially to such as the scarlet fever toxin, diphtheria toxoid, vaccination against smallpox and prophylactic pertussis vaccine.) Can there be any more harmful symptoms or complications from the administration of all these vaccines and serums at one sitting than by injecting each at a time?

JACOB STERN, M.D., Chicago.

ANSWER.—There is no experience with human beings on the basis of which a definite answer can be given to these questions. It is not known, for instance, whether successful vaccination against smallpox would interfere in any way with the immune reactions against scarlet fever toxin, diphtheria toxoid or pertussis vaccine. Neither is it known whether the inoculations mentioned would cause more serious symptoms if made at one time than if made at different times; but it would seem reasonable to assume that simultaneous inoculations might give rise to serious disturbances. Certainly it would not be advisable to undertake simultaneous inoculations in the present state of knowledge and experience.

HYDROCYANIC ACID EFFECTS ON PARKINSONISM

To the Editor:—I have under my care a man, aged 44, with a definite history of epidemic (lethargic) encephalitis in 1924 and parkinsonism developing five years later. For fifteen years he has been engaged in fumigation with hydrocyanic acid and states that whenever he has a whiff of the gas there is an increase in his rigidity. He is now being forced into retirement and desires to establish an industrial connection. I would appreciate information and special references concerning the effect of hydrocyanic acid in aggravating a condition quite obviously caused by an infectious disease. Please omit name.

M.D., District of Columbia.

ANSWER.—Hydrocyanic acid, being an internal asphyxiant and thus a disturber of normal tissue oxidation, theoretically may be regarded as a temporary accelerant of almost every disease. The following quotation is derived from Henderson and Haggard's "Noxious Gases" (New York Chemical Catalog Company, Inc., 1927):

"The tissues manifest life by heat and movement, and the continual oxidation of foodstuffs. Cyanides stop this oxidation, and the vital functions are suspended. The suspension is maintained only during the presence of the cyanide; its removal allows the return of normal function, if death has not occurred during the period of oxygen starvation. Cyanide poisoning is a form of asphyxia caused by the arrest of internal respiration."

In unprejudiced fairness, doubt may be entertained that the severity of Parkinson's disease and residual encephalitis is measurably increased by an occasional whiff of hydrocyanic acid. Even if at the moment of exposure the manifestations of these disorders are more noticeable, the effects of the episode are not known to eventuate in a persistent aggravation of the preexisting diseases. General discussions of the nature of hydrocyanic acid poisoning may be found in Alice Hamilton's "Industrial Poisons in the United States" (New York, Macmillan Company, 1929), Kober and Hayhurst's "Industrial Health" (Philadelphia, P. Blakiston's Son & Co., 1924), and several official publications of the United States and the British public health services.

USE OF DIPHTHERIA TOXOID

To the Editor:—In November, the local Parent-Teachers Association sponsored and carried through the inoculation of 281 children of school age with the first of two treatments for diphtheria with toxoid. During the entire fall, more or less trouble occurred with bad throats and in several cases this was followed by glandular trouble. Sore throat with fever occurred before the inoculation but so far as I know there was no nephritis. Thursday, December 14, a youth, aged 18 years, who received the first treatment on November 29, was taken to the local hospital with acute nephritis. So far as I am able to find, he was not ill with a bad throat any time this fall. I am wondering what the history of toxoid is with reference to nephritis. Would there be justification for concluding that his illness is due to the toxoid or might there be some other cause? I am wondering if it would be asking too much of your office to answer my questions at once and rather fully. As a school superintendent I am intensely interested in health and if nephritis is apt to follow inoculation with toxoid I don't want to be urging that it be taken. I would appreciate knowing what the picture is relative to diphtheria and toxoid and toxoid and its after-effects.

Superintendent, West Union Public Schools.

E. A. RALSTON, West Union, Iowa.

ANSWER.—While the possibility that the illness of the boy may have been due to the toxoid cannot be excluded absolutely, it seems probable that it resulted from some other cause. The experience in immunization against diphtheria does not indicate that nephritis is likely to follow the injection of toxoid. Toxoid properly administered appears to be an effective means of preventing diphtheria without any serious disturbances.

REDUCTION OF LOCAL ACCUMULATIONS OF FAT

To the Editor:—An attractive woman, aged 28, has appealed to me for scientific information that she may use to effect a reduction in the size of the calves of her legs. She is of slightly less than average size and is well proportioned except for an accumulation of fat around the thickest portion of the gastrocnemius muscles. The basal metabolic rate is normal and there is no evidence of any glandular abnormality. Five months ago she had a suspension operation for retroversion of the uterus. As a young girl she was very active in dancing, skating and rope jumping, and the muscles of the legs are quite well developed. There is no tendency toward any deposit of fat elsewhere than the region mentioned. Is there anything in the way of massage or exercise that I may prescribe for her? If so, please give details. Kindly omit name.

JR., Virginia.

ANSWER.—The reduction of local accumulations of fat is a difficult and uncertain matter. The use of a mild weight reduction diet accompanied by exercise of the affected parts is sometimes successful. Dancing and rope skipping would be the exercises of choice. Since the patient is not overweight, the reduction diet should be intermittent so as not to cause too much general weight loss. The exercises, however, must be maintained indefinitely, since there appears to be an increased tendency for the deposition of fat around well developed muscles, once the exercise of those muscles ceases. The latter observation may have some bearing on the etiology of the fat accumulation in the case described.

VISUAL EFFICIENCY

To the Editor:—I cannot get quite clear in my mind what a supervising approver for an insurance company means when he states that "20/100 vision is equivalent to 48 per cent of visual efficiency—based on a chart furnished by the American Medical Association." The vision in one eye of the patient in question is light perception and light projection and in the other eye is 20/100.

LEO J. GOLDBACH, M.D., Baltimore.

ANSWER.—The Section on Ophthalmology of the American Medical Association in 1925 received a report of a committee appointed to determine the percentage of loss of vision due to industrial accidents. This report is published under the title

of "Appraisal of Loss of Visual Efficiency" by the American Medical Association and is obtainable by purchase (ten cents).

According to that table, when the vision for distance is 20/100 and for near 14/70, by the Snellen scale, the percentage of visual efficiency in that eye is 48.9 and the percentage of loss of vision is 51.1. The Wisconsin table, which is in use by the industrial commission of Illinois, allows 75 per cent loss of vision or 20/100 vision.

TOXIC NEURITIS OF OPTIC NERVE

To the Editor:—I have a case of evidently toxic neuritis of the optic nerve of a hair dresser who has been using benzene, Vapon shampoo, and Inecto-Notox hair dye. I should like to know whether there is any record of toxic neuritis from these chemicals and, if so, where I could find information in the literature as to the treatment of such cases. Also chemical analysis of ingredients in the dyes.

C. S. Bucher, M.D., Champaign, Ill.

Answer.—There are no reports in the literature to the effect that Vapon or Inecto-Notox hair dye has caused optic neuritis. Naphthalene has a powerful effect on the lens of lower animals and when ingested produces cataract. Methyl alcohol fed to animals produces a degeneration of the macular ganglion cells of the retina. Clinically, retrobulbar neuritis is found in various poisonings, including methyl alcohol, tobacco and diabetes. Optic neuritis from benzene has not been heretofore reported so far as can be learned.

PRESCRIPTION OF DIURETICS

To the Editor:—Please suggest how one may prescribe the diuretics urea, ammonium chloride and ammonium nitrate in a palatable form.

A. J. Reich, M.D., New York.

Answer.—The following prescriptions yield preparations probably as palatable as may be. All of these contain 1 Gm. of the drug per teaspoonful, which must be well diluted with water before being taken.

℞	Ammonium chloride	30 Gm.
	Anise water	30 cc.
	Syrup of glycyrrhiza to make	120 cc.
℞	Ammonium nitrate	30 Gm.
	Syrup of glycyrrhiza to make	120 cc.
℞	Urea	30 Gm.
	Acacia powder	12 Gm.
	Syrup of cinnamon to make	120 cc.

DIARRHEA AFTER TAKING IRON PREPARATIONS

To the Editor:—The editorial entitled "'Available' Iron in Therapy" (The Journal, Dec. 30, 1933, p. 2123) states that "the iron in pyrophosphate not only is available but is held in such firm combination that it does not produce the astringent effects so characteristic of other iron salts." Astringent effects are local. Astringent salts are used to curb diarrhea. Large doses of iron and ammonium citrate, say from 6 to 8 Gm. daily, induced loose stools or even diarrhea, so that the dosage has to be curtailed. I never quite understood why this is so. The prevailing opinion among the profession is that iron is constipating, as it is in the small dosage that many employ. Can you explain?

Thomas I. O'Drain, M.D., Philadelphia.

Answer.—Iron and ammonium citrate is not a protein precipitant and hence is nonastringent. The laxative effect of the large dosage mentioned may be due to irritative action of the drug in such doses or to its otherwise disturbing digestive equilibrium. It is in this manner, no doubt, that large (1 Gm.) doses of reduced iron, which by itself is incapable of producing irritation, may cause diarrhea.

TYPHOID VACCINE AND TETANUS ANTITOXIN

To the Editor:—1. Should a patient who has taken her last prophylactic dose of typhoid vaccine five days previously receive tetanus antitoxin for a moderately deep lacerated wound of the leg? The wound was inflicted by a metal support under a card table and occurred two days before the patient was seen. There is apparently little infection, and no sutures were required. 2. Would the fact that the patient had just received a dose of typhoid vaccine increase the danger of reaction from the administration of tetanus antitoxin? Please omit name and address.

M.D., South Carolina.

Answer.—1. There seems to be no good reason why the patient should not be given tetanus antitoxin without delay if the nature of the wound demands antitetanus prophylaxis.

2. The typhoid vaccine would not, so far as is now known, increase the danger of reaction from tetanus antitoxin.

SAFE ANESTHETIC FOR OFFICE USE

To the Editor:—What do you regard as the safest anesthetic for short anesthesia in office work? The general practitioner is in need of a safe anesthetic for minor office work such as opening boils, curetting ulcers, puncturing ear drums and things that require only a moment or two of work. Ether takes too long to be effective and I have always been just a little afraid of chloroform. I have given ethyl chloride a few times but I think it is unsafe; in fact, some claim that it is highly toxic. Is there anything safer? Or it may be that I am just a little too apprehensive in regard to the different agents. Please omit name.

M.D., West Virginia.

Answer.—The local anesthetic procaine hydrochloride is the safest agent for minor operations in the office. There are, however, many minor operations, such as those mentioned, in which a general anesthetic is desirable. The safest general anesthetic for office use is, no doubt, nitrous oxide, as has been amply demonstrated by its use in dental offices. Certainly, chloroform is to be avoided, and ethyl chloride is unsafe unless it is administered by an expert anesthetist. The safest possible agent is the only one permissible for office use, as a fatality due to an anesthetic used for a minor operation would carry with it great moral, ethical and medicolegal responsibility.

THYROID DISEASE IN A CHILD

To the Editor:—The thyroid gland has been enlarging gradually in a girl aged 4 years. The child has a slender neck, and one can see distinctly a small swelling corresponding to the thyroid gland. The mother had an enlarged thyroid gland with some symptoms of thyrotoxicosis while carrying the child. The girl is quite excitable. What management would be proper at the present time? Would compound solution of iodine in minimal doses be indicated? Please omit name.

M.D., Iowa.

Answer.—The management of thyroid disease in children is essentially the same as in adults except that more conservatism is indicated. The metabolic rate should be determined in a qualified laboratory. Growth and nutrition should be observed. Iodized salt should be used in the cooking and at the table. Cod liver oil given for vitamin content will also supply iodine. Together these substances will cover the iodine requirements. Foci of infection in the teeth, nose and throat should be removed. The daily life should be quiet and restful.

DOG AS A CARRIER OF SCARLET FEVER

To the Editor:—Have dogs ever been known to act as carriers of scarlet fever and to transmit the disease to human beings? What is the public health teaching regarding a dog in a house quarantined for scarlet fever? Is the dog allowed to run free or should he be kept on the premises? Please omit name.

M.D., Minnesota.

Answer.—There is no evidence to indicate that the dog can be anything more than possibly an accidental carrier of scarlet fever. Dogs, like other household pets, must be excluded from the sickroom and from contact with patients suffering from acute infectious diseases. When thus excluded, it would seem to make little difference whether the dog is allowed to run free or is confined to the premises.

GLYCERITE OF BISMUTH BY MOUTH IN SYPHILIS

To the Editor:—I should like to inquire as to the efficiency of the oral administration of the glycerite of bismuth, in doses of 20 minims (1.25 cc.) three times a day, in the routine treatment of syphilitic cases, and as to whether it is possible to use this medication to replace completely the intramuscular injection of bismuth. Please omit name.

M.D., California.

Answer.—Glycerite of bismuth in any dose is of no value as an antisyphilitic. Administration of bismuth salts by mouth has been tried by Levaditi and others on syphilitic rabbits with inconstant results, far inferior to the results of intramuscular injection.

ACNE

To the Editor:—Please inform me concerning the best line of treatment of pitting and scarring in acne.

F. L. Chenault, M.D., Decatur, Ala.

Answer.—The major portion of methods of treatment of pitting and scarring in acne are of little or no value. The so-called peeling methods not infrequently increase rather than diminish the disfigurement. With proper hygiene of the skin in general, pitting and scarring gradually improve with time and radical intervention is usually not justified.

EFFECTS OF IODIZED SALT

To the Editor:—Please tell me what the effect would be in the use of iodized salt over a long period of time in a patient who has a basal metabolic rate of — 23. How would this affect the giving of thyroid? Kindly omit name.

M.D., Illinois.

ANSWER.—The prolonged use of iodized salt would not lower the rate of a patient to — 23 per cent and, on the other hand, might affect the patient's thyroid so that a gradual rise of metabolism toward normal might occur. It would not affect the giving of thyroid if this is indicated. If thyroid disorder, either with or without goiter, is thought to be present, iodized salt is indicated.

CONTINUOUS USE OF QUINIDINE

To the Editor:—Will you please advise me regarding reports on long continued use of quinidine in good sized doses. It seems to me that I recently read a report of 12 grains (0.78 Gm.) of quinidine being used daily over a period of months.

GEORGE W. JONES, M.D., Clovis, N. M.

ANSWER.—Patients with whom it agrees may be given such doses of quinidine indefinitely. It has been given for a year, and even for years.

ACUTE INFECTIOUS MONONUCLEOSIS

To the Editor:—Is there at present a specific for use in the treatment of acute infectious mononucleosis or is the treatment entirely symptomatic?

J. M. BODENHEIMER, M.D., Shreveport, La.

ANSWER.—There is at present no specific treatment of acute infectious mononucleosis. Fortunately, symptomatic treatment is usually successful.

INFECTION WITH TUBERCULOSIS

To the Editor:—In Queries and Minor Notes in THE JOURNAL, February 17, the statement is made that an individual who was once infected with tuberculosis to the extent that he reacts positively to tuberculin is rendered hypersensitive to further tuberculous infection in a manner similar to that of an individual who is allergic to ragweed pollen. While such a theory has been promulgated by some writers, the majority of workers in this field still maintain that a slight tuberculous infection reduces the risk of further infection.

In a recent paper (THE JOURNAL, April 8, 1933, p. 1077), C. A. Stewart of Minneapolis reports his observations on eighty-four children at the Lymanhurst School for Tuberculosis, and from his studies he concludes that an individual who has a primary tuberculous infection "is doomed thereafter to develop consumption if successfully reinfected from exogenous or endogenous sources."

Of course no one doubts the fact that an individual cannot develop tuberculosis as a result of an endogenous infection unless he has previously been infected with tuberculosis, and a focus containing viable tubercle bacilli is still present somewhere in his system. But there is no sufficient evidence to warrant the contention that a person who once had a primary tuberculous infection is more likely to be reinfected from exogenous sources.

This is not the place to discuss in detail the theories advanced by Dr. Stewart and his associates, nor is it necessary, since no less an authority than Dr. William H. Park (THE JOURNAL, Nov. 18, 1933, p. 1619) discusses this matter in detail in connection with his report on the use of BCG vaccine, and he and his collaborators conclude, "We do not think that slight primary tuberculous infection as obtained by natural infection or produced by vaccination diminishes resistance against future superinfections by tuberculosis."

It is a matter of common knowledge that from 75 to 90 per cent of the adult population, especially in urban centers, have had a primary tuberculous infection as indicated by a positive tuberculin reaction; yet only a small percentage develop clinical tuberculosis. If a primary infection would render an individual hypersensitive to further infection, the incidence of tuberculosis would be much larger than it is. It may be argued that the greatest number of allergic individuals escape tuberculous disease because they are not exposed to infection. It is reasonable to suppose, however, that, taking the population at large, individuals who have had a primary infection are just as much exposed as those who have never been infected, so that, if there is sufficient infection prevalent among the population to produce a primary infection in such a large percentage of people, one would expect sufficient exposure to reinfection to produce disease in a larger percentage than actually occurs. One is therefore forced to the conclusion that the vast majority of allergic individuals have sufficient resistance to ward off reinfection.

JOSEPH ROSENBLATT, M.D., Liberty, N. Y.

EFFECTS OF BODY TEMPERATURE ON SPERM

To the Editor:—In Queries and Minor Notes in THE JOURNAL, March 17, page 866, Dr. G. L. Moench stated that the body temperature alone, other factors remaining the same, will kill all sperm in the female genital tract within twenty-four hours and certainly within forty-eight hours. If body temperature alone killed sperm, living sperm in ejaculations from twenty-one to twenty-eight days after bilateral, complete vasectomies would not be observed. However, living sperm have been found after vasectomies in this time interval, as reported by Dr. A. Elmer Belt (THE JOURNAL, February 3, p. 396).

W. M. LARSON, M.D., Chicago.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGOY: *Written.* Examinations will be held in various cities, April 30. *Oral.* Cleveland, June 11-12. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Oral* (all candidates), Cleveland, June 12. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: Cleveland, June 11 and Butte, Mont., July 16. *Application must be filed at least 60 days prior to date of examination.* Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Cleveland, June 11. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

ARKANSAS: *Basic Science.* Little Rock, May 7. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Regular.* Little Rock, May 14-15. Sec., Dr. A. S. Buchanan, Prescott. *Homeopathic.* Little Rock, May 8. Sec., Dr. Allison A. Pringle, Eureka Springs. *Eclectic.* Little Rock, May 8. Sec., Dr. L. L. Marshall, 820 W. 14th St., Little Rock.

CALIFORNIA: *Reciprocity.* San Francisco, May 16. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

MINNESOTA: Minneapolis, April 17-19. Sec., Dr. E. J. Engberg, 350 St. Peter St., St. Paul.

NATIONAL BOARD OF MEDICAL EXAMINERS: The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates, May 7-9 (limited to a few centers), June 25-27, and Sept. 12-14. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEBRASKA: *Basic Science.* Omaha, May 1-2. *Application must be filed at least 15 days prior to date of examination.* Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEVADA: Carson City, May 7. Sec., Dr. Edward E. Hamer, Carson City.

Montana April Report

Dr. S. A. Cooney, secretary, Montana State Board of Medical Examiners, reports the written examination held in Helena, April 4-5, 1933. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Four candidates were examined, all of whom passed. Two physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Northwestern University Medical School		(1929)	83.5
Sch. of Med. of the Division of the Biological Sciences		(1932)	81.4
University of Illinois College of Medicine		(1931)	79.5
Washington University School of Medicine		(1932)	82.1

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Creighton University School of Medicine		(1921)	Nebraska
University of Wisconsin Medical School		(1929)	Wisconsin

New Mexico Endorsement Report

Dr. P. G. Cornish, Jr., secretary, New Mexico Board of Medical Examiners, reports 17 physicians licensed by endorsement at the meeting held in Santa Fe, Oct. 9-10, 1933. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Arkansas School of Medicine		(1932)	Nebraska
College of Medical Evangelists		(1933)	N. B. M. Ex.
Chicago Medical School		(1930)	Illinois
College of Physicians and Surgeons of Chicago		(1912)	Illinois
Rush Medical College		(1932)	Illinois
Indiana University School of Medicine		(1927)	Indiana
Tulane University of Louisiana Medical Department		(1907)	Louisiana
University of Maryland School of Medicine and College of Physicians and Surgeons		(1917)	Arkansas
Barnes Medical College, Missouri		(1908)	S. Dakota
Beaumont Hospital Medical College, Missouri		(1897)	Mexico
Missouri Medical College		(1890)	Missouri
University of Buffalo School of Medicine		(1923)	New York
Baylor University College of Medicine		(1932, 2)	Texas
University of Texas School of Medicine		(1919), (1932, 2)	Texas

North Carolina Endorsement Report

Dr. B. J. Lawrence, secretary, North Carolina State Board of Medical Examiners, reports 23 physicians licensed by endorsement at the meeting held in Raleigh, Dec. 2, 1933. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists		(1933)	N. B. M. Ex.
Yale University School of Medicine		(1931)	Michigan
Emory University School of Medicine		(1922)	Alabama
University of Georgia School of Medicine		(1930)	Georgia

Northwestern University Medical School	(1932)	Ohio
University of Louisville Medical Department	(1917)	Kentucky
Baltimore Medical College	(1903)	New York
Johns Hopkins University School of Medicine	(1930)	Maryland
University of Minnesota Medical School	(1925)	Minnesota
Central Medical College of St. Joseph, Missouri	(1897)	Missouri
St. Louis University School of Medicine	(1932)	Missouri
Washington University School of Medicine	(1906)	Missouri
Cornell University Medical College	(1920)	New York
Long Island College Hospital	(1928)	Louisiana
University of Rochester School of Medicine	(1932)	New York
Medical College of the State of South Carolina	(1922), (1926), (1931)	South Carolina
Meharry Medical College	(1932)	Tennessee
Vanderbilt University School of Medicine	(1931)	N. B. M. Ex.
Medical College of Virginia	(1925), (1931), (1932)	Virginia

Book Notices

Speech Disorders: A Psychological Study of the Various Defects of Speech. By Sara M. Stinchfield, Ph.D., Lecturer in Psychology, University College, University of Southern California, Speech Clinic, Orthopaedic Hospital School, Los Angeles. Cloth. Price, $4. Pp. 341, with 26 illustrations. New York: Harcourt, Brace & Company; London: Kegan Paul, Trench, Trubner & Co., Ltd., 1933.

This carefully written volume will be of chief interest to the psychologist but of little interest or value in the treatment of speech disorders. To the person with speech defect it will appeal as a scientific book with interesting statistics, but no cures will be effected by the reading. Speech in infancy and childhood is tabulated with numerous relationships, but a too technical classification is presented. The deaf, blind and cleft palate child is discussed from a social point of view. References are numerous, but page numbers often are not mentioned. The pages on stuttering are devoted to etiologies, but no final conclusion is reached. Outgrowth as a treatment is spoken of unfavorably, but no idea is given as to the best treatment for the defect. Freud's treatment is discussed but not evaluated. A comparison is made between college and school groups as to number and kind of speech defects. The author discusses researches on right and left handedness and on cerebral dominance made by different speech specialists and finds that there is no evidence that either of these theories gives the etiology. One chapter is taken up in comparing the scholarship and aptitudes of groups of students in college and school in relation to their being silent and oral readers in their study. Five excellent charts are shown with this information, but the reader wonders what this has to do with speech disorders. The speech tests given are confined entirely to school and college groups but not to business or social groups. The chapter on case histories is good. Bluemel is given credit for "the most lucid and detailed" form of treatment. The author is mistaken in calling his theory visual amnesia. It is decidedly auditory. Bluemel (vol. 1, p. 377) refers to "auditory amnesia as the primary cause of stammering." The author is also mistaken about the Swift method. Swift, the originator of the visual theory and the treatment of visual development, says "the cause is visual asthenia" (A Psychological Analysis of Stuttering, *Journal of Abnormal Psychology*, October-November 1915, p. 13, line 3). Also in "Speech Defects in School Children and How to Treat Them" (Boston, Houghton Mifflin Company, 1918, p. 18, line 10), "they constantly lack this visual image while they are stuttering."

The whole book is well written and clear to those familiar with speech nomenclature, but poor as far as treatment for stammering or other speech defects are concerned. In other words, the author gives a psychologic study of all phases of the subject except the psychologic study of treatment, which is the most important phase of the whole subject.

Diagnostics urgents: Abdomen. Par H. Mondor, professeur agrégé à la Faculté de Paris. En deux volumes. Second edition. Cloth. Price, 160 francs. Pp. 1064, with 306 illustrations. Paris: Masson & Cie, 1933.

In this edition the author offers an exhaustive differential diagnosis of acute abdominal conditions without consideration of pathogenesis or therapy. The book contains chapters on acute peritonitis, traumas of the abdominal cavity, intraperitoneal hemorrhages, intestinal occlusion, other syndromes such as acute dilatation of the stomach, acute hemorrhagic pancreatitis, intestinal infarcts, torsion and volvulus of the intestine. Discussion of differential diagnosis is exemplified by case histories accompanied by temperature charts. Owing to the presence of many repetitions, several chapters are rather voluminous, 127 pages being devoted to the diagnosis of appendicitis, 89 to perforation of gastric and duodenal ulcers and 41 to Meckel's diverticulitis. While discussing appendicitis, the author applies the term "absurd" to a diagnosis of acute enteritis or spastic colitis. Reproductions of photographs are instructive but not attractive, because of a grayish appearance caused probably by overexposure. Certain omissions have been noticed: for instance, in the discussion of the diagnosis of ectopic pregnancy, the Aschheim-Zondek test is not mentioned at all; blood chemistry has not been considered in the diagnosis of intestinal occlusion. Generally speaking, physical and also roentgenographic observations are described meticulously, while laboratory observations have been completely disregarded or are treated in a stepmotherly manner. The index of authors mentioned in the text appears to be superfluous, as no bibliographic references are given. The book is well written; it contains an immense wealth of diagnostic material and may be considered as a valuable and authoritative contribution to the French medical literature.

Red Medicine: Socialized Health in Soviet Russia. By Sir Arthur Newsholme, K.C.B., M.D., and John Adams Kingsbury, LL.D., Secretary of the Milbank Memorial Fund. Cloth. Price, $2.50. Pp. 324, with illustrations. Garden City, N. Y.: Doubleday, Doran & Company, Inc., 1933.

Red Medicine is both interesting and evasive. It is interesting in that it carries the reader a little too smoothly and altogether too hurriedly over a vast area of perhaps heretofore slightly known territory. Too smoothly, because the reader is likely to be impressed with the apparent ease with which each item of interest and every incident of note seem to have been discussed with more or less intimate understanding and sang froid; too hurriedly, because in the limited time of possibly six weeks the reader is carried rapidly over 9,000 miles of southwestern Soviet Russia, through and about fourteen cities, in a section of the world where some familiarity with the language, customs and previous social system would, no doubt, have been of great assistance in checking the interpreter's explanations. This trip must have been much less deliberate than that of the original Volga boatmen.

The style of the book is simple and the reader is somewhat intrigued by the freely flowing accounts of night life, dancing, bowling, high spots of industry, commerce, agriculture, building operations and public parks and the authors' side trips to view famous jewels and objects of art. Indeed, the first part of the book is an interestingly written travelogue of a previously planned, personally conducted sightseeing trip into hitherto unknown parts. One's interest tires, however, on account of the too free use of superlatives in praise of services and institutions that must have been hastily observed. Eleven chapters are devoted to a description of communism, government in the Union of Socialist Soviet Republics, industrial conditions and health, agriculture, religious and civil liberty, home life, recreation, clubs, education, women in Soviet Russia, marriage and divorce.

Those chapters which are devoted to care of children, care of maternity, the problem of abortion, the training of physicians, the medical care of the sick in residential and nonresidential institutions and care of tuberculosis and venereal disease are filled with references to institutions and generalities concerning the mechanics of medical care and organization details.

The discussion of medical education is inadequate and unconvincing. The use of statistics on pages 203 and 212 is inadequate for the purpose, and the conclusion that "evidently . . . there has been a marked reduction in it" (infant mortality) is a dogmatic statement not supported by facts.

One looks in vain for an evaluation of the quality of medical care or an account of actual medical procedures. The authors have carefully and completely avoided a satisfactory discussion of the income of physicians and the methods by which they are paid.

The treatment of the entire subject is exceedingly favorable to the forms of medical institutions that the authors found on this trip. In spite of the fact that the authors feel that they took precautions against drawing conclusions from "show window display," there are many reasons to think that they saw only the best of everything.

It is repeatedly stated that the Russians started from almost nothing in the way of medical care for the people (p. 269), and it is recognized that this gave certain advantages, since there were no institutions to be changed or with which to compare present standards of medical care. Yet there is no adequate comparison of present-day medical practice with that of the prewar period.

The comparisons with the United States (pp. 271-277) have some defects. The shortage of physicians in the rural areas in the United States seems to be exaggerated and belittled as due wholly to historical causes in Russia. Self medication, which prevails so much in the United States, is absent in Russia but only, according to the statements of the authors, because of the excessive price of drugs and their almost complete absence from private trade (p. 274). The information on the income of physicians in Russia is extremely indefinite, and nowhere are definite figures given (pp. 250-251 and p. 274).

There seems to be a tendency to exaggerate the value of institutional medical care through laboratories, groups, hospitals and sanatoriums.

Much is made of the fight on cholera and typhus, but there is little reference to the fact that these have been abolished elsewhere and that the reduction in typhoid, diphtheria, smallpox and other diseases has been much greater in other countries.

Much is made of the fact that the lack of physicians was the cause of bad conditions previously, but nowhere is there a conclusion drawn that the increased supply of physicians might have produced improved conditions without the excessive socialization.

The lack of food and housing is mentioned, but little stress is laid on the fact that the first of these especially has been the cause of tremendous famines that have undoubtedly caused more deaths than disease.

While there is frank reference to the abolition of all essential liberties, there is no discussion of how this must affect medical research, especially in its social relations. It is hard to believe that scientific research can flourish in such an atmosphere.

Medizinische Kolloidlehre. Herausgegeben von Prof. Dr. L. Lichtwitz, Direktor der I. Inn. Abt. des Rudolf-Virchow-Krankenhauses Berlin, Dr. Dr. Raph. Ed. Liesegang, und Prof. Dr. Karl Spiro, Direktor des Physiologisch-Chemischen Instituts der Universität Basel. Lieferung 3: [Untersuchungsmethoden.] Paper. Price, 5 marks. Pp. 153-232, with illustrations. Dresden & Leipzig: Theodor Steinkopff, 1933.

This instalment of Medizinische Kolloidlehre deals chiefly with fermentations and the immunity reactions. Kurt G. Stern, writing on the enzymes, discusses their chemical nature, their colloidality and their electrolytic character. He prefers the term "sorption" to "adsorption," as it is necessary to abandon the attempt to distinguish between mere physical and true chemical union, sorption being the result of difference in electrical potential. The kinetics and the character of enzyme reactions in solutions as well as within cells is discussed, and the chapter ends with an estimate of the number of enzyme molecules per cell. This is calculated for the yeast cell at somewhere between 15,000 and 50,000, while Aspergillus niger contains only 1,000 saccharose molecules. It is probable that the genes of genetics are catalyzers whose number per cell may be as low as 2, 1 or 0. Alfred Klopstock endeavors to show to what extent colloid chemistry can explain the antigen-antibody reaction. While all antigens are colloids, not all colloids are antigens. Antibodies may also be crystalloid. Ehrlich's fanciful theory of "haptophore" and "ergophore" groupings with its great variety of antibodies must be abandoned and the unitarian view of Bordet and Friedberger adopted, which postulates a similar fundamental change that manifests itself in different forms under different conditions. These reactions are essentially of a colloidochemical character. Thus, the toxin-antitoxin reaction is essentially a change in the colloidality of the toxin particles, which may under certain conditions result in deflocculation. Anaphylaxis is the same kind of reaction involving antibodies that are present in or on the cells and which react with the antigen resulting in a change in the colloidal equilibrium of the surface layer. Whether this change directly acts as the functional stimulus or whether it results in the production of histamine which may be the direct cause of the symptoms (as is held of late) is merely a matter of detail.

Medicolegal

Insurance, Accident: Death from Gas Bacillus Infection.—On the life of Harry S. Martin, the Bankers' Life Company of Des Moines had issued two life insurance policies, both providing for double indemnity if he died by accident. On April 28, 1930, Martin, a farmer, went into and out of his hog house several times, caring for a litter of newly farrowed pigs. An employee, who was assisting him, noticed once as Martin was coming out of the hog house that the back of his hand had been skinned and was bleeding. Martin wiped his hand with his handkerchief but continued at his work until midnight, when he returned home. The next morning his wife noticed that the area around the wound was puffed and swollen and of a purplish color. Martin worked as usual on that day, except that on his way home for lunch he consulted his family physician, Dr. Besser, who also observed a peculiar discoloration around the wound. He cleaned the wound with green soap and put on an iodine dressing, gauze and a bandage. On the second morning following the injury, Martin returned to Dr. Besser's office, the wound then looking more angry. In the afternoon of the same day he called on Dr. Besser again, and the wound was dressed as before. The local condition improved and the wound was last dressed by Dr. Besser, May 3 or 4. But Martin, who had been an energetic, active man, was observed after the injury to slow down. His color was pasty and ashy, he had a sleepy look, and his eyes appeared sunken. He moved sluggishly and continued thus indisposed.

On June 6, Martin again consulted Dr. Besser, this time because of abdominal pain. Early the next morning Dr. Besser was called and visited Martin at his home. But the pain continued and, three quarters of an hour later, Dr. Besser was called again. At this visit he made a tentative diagnosis of acute appendicitis and advised Martin to go to the hospital. Martin's wife observed at this time eight or ten little spots on his back, of a purplish color, like his hand had been when it was hurt. At the hospital a blood examination showed a white cell count of 14,000. A consultation was held and the tentative diagnosis of appendicitis was agreed to. On the morning of June 7, at about 9 o'clock, Martin was operated on. When the abdomen was opened the appendix was seen to be somewhat inflamed, but neither Dr. Johnson, who was operating, nor Dr. Besser, considered its condition sufficient to account for the symptoms. The appendix was removed, but Martin did not improve. On the fourth day after the operation, symptoms of intestinal obstruction appeared and a second operation was performed. The incision was made at the site of the previous operation. As the stitches were removed the wound gapped open, exposing dark-colored muscle, described by Dr. Johnson as black and crepitant. The intestines were distended and generally black, but the intestine near the site of the operation was the best part. There was considerable fluid in the abdomen. No bands of adhesion nor twisting of the intestines were found. The odor was somewhat characteristic, from sour to rancid, not a normal odor. The wound was closed with drainage. A diagnosis of gas bacillus infection was made and an injection of serum was given, but Martin died, June 12, after a few hours of apparent improvement.

The insurance company paid the basic insurance required by both policies but refused to pay the double indemnity due if Martin's death was caused by accident. Thereupon Martin's widow, the beneficiary of the policies, sued to enforce payment of the double indemnity, alleging that Martin died by accident.

All the medical witnesses for the plaintiff believed that the gas bacillus might remain dormant in the blood for several weeks or longer and then set up an active infection in a part of the body remote from the point of injury, through which the bacillus entered. Dr. Besser believed that there was no pathologic condition to account for Martin's death, other than gas bacillus infection. The defendant-insurer contended, however, not only that the evidence offered by the plaintiff did not show that Martin's death was due to infection by the gas bacillus or that his death could have resulted from such an infection incident to the accident of April 28, but that it did not show even that the injury to Martin's hand was accidental.

The insurer's medical witnesses contended that the infection might have resulted from some failure of technic in the course of the operation or from other causes; that no certain diagnosis of infection by the gas bacillus could be made except by a laboratory test, and that the testimony of the insurer's experts showed that infection arising from the gas bacillus must develop at or in proximity to the injury which the bacillus entered, that the bacillus cannot be carried in the blood stream and set up infection at a point remote from the point of entry, and that infection from this bacillus always appears within a very short time after the entry of the bacillus and develops rapidly.

The trial court directed a verdict for the insurer and gave judgment in its favor. The plaintiff, the widow of the insured, thereupon appealed to the Supreme Court of Iowa.

The Supreme Court was unable to see the force of the insurer's contention that there was no direct evidence to show that Martin's death resulted from an accident. The testimony of the widow, the family physician and the helper employed on the farm of the insured eliminated from consideration any injury other than that of April 28, 1930. All physicians who testified for the plaintiff believed that the gas bacillus entered the wound then inflicted. Whether the evidence as to the facts on which their opinions were based was true, and how much weight should be given to the opinions themselves, were matters within the discretion of the jury. The insurer contended that the appendicitis and the resulting operation introduced a new and independent cause and that, even if death did result from infection by the gas bacillus, the operation contributed to and hastened the death, and that therefore double indemnity was not payable. It appeared to the Supreme Court, however, that the evidence adduced by the plaintiff was sufficient to make a case for the jury and that in directing a verdict for the defendant the trial court erred. The ruling and judgment of the trial court were therefore reversed.—*Martin v. Bankers' Life Co. of Des Moines (Iowa), 250 N. W. 220.*

Workmen's Compensation Acts: Tuberculosis of Spine Aggravated by Strain.—The plaintiff, while in the employ of the defendant, strained his back. He soon resumed work and continued at it for several months. His employer, the defendant, reported the accident to the department of labor and industry but reported it as noncompensable. Some months after the accident the plaintiff was found to be suffering from tuberculosis of the spine, pulmonary tuberculosis and tuberculosis of one testicle. The industrial commission held that the plaintiff had tuberculosis of the spine at the time of the accident but that it was not then disabling; that the accident injured the plaintiff's back in the region attacked by the tuberculous process; that an injury may aggravate a tuberculous process in the spine or cause it to flare up, so that disability results; that the injury by accident Aug. 17, 1929, was the cause of the plaintiff's disability, and that the plaintiff had been totally disabled since Aug. 22, 1930. The department of labor and industry therefore awarded compensation. His employer appealed to the Supreme Court of Michigan.

The plaintiff's medical witnesses were of the opinion that the fact that he was able to work at hard labor for several months after the strain showed that the strain aggravated his tuberculosis of the spine and caused total disability. On the other hand, the defendant's medical witnesses believed that an injury sufficient to effect that result would have produced an intensifying of the disease such as to disable the plaintiff from labor within a month. The Supreme Court concluded, however, that there was evidence supporting the finding of the commission and that therefore it was not for the court to review it. In passing on the contention of the employer that the plaintiff's disability was caused by tuberculosis of the lungs and throat, unconnected with the accident, the court called attention to the commission's finding: "The fact that plaintiff has pulmonary tuberculosis which is or may be disabling, does not defeat his claim for compensation in this case, as the commission cannot speculate as to what percentage of his disability is caused by the pulmonary tuberculosis or tuberculosis of the throat, and the Pott's disease aggravated by the injury."

The award to the plaintiff was affirmed.—*Weller v. Consumers' Power Co. (Mich.), 250 N. W. 298.*

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Birmingham, April 17-19. Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.
American Association for the Study of Goiter, Cleveland, June 7-9. Dr. J. R. Yung, 670 Cherry Street, Terre Haute, Ind., Secretary.
American Association of Genito-Urinary Surgeons, Hot Springs, Va., May 14-16. Dr. Henry L. Sanford, 1621 Euclid Avenue, Cleveland, Secretary.
American Association on Mental Deficiency, New York, May 26-29. Dr. Groves B. Smith, Beverly Farms, Godfrey, Ill., Secretary.
American Clinical and Climatological Association, Toronto, Canada, May 21-23. Dr. Francis M. Rackemann, 263 Beacon Street, Boston, Secretary.
American College of Physicians, Chicago, April 16-20. Mr. E. R. Loveland, 133 South 36th Street, Philadelphia, Executive Secretary.
American Dermatological Association, New York, June 7-9. Dr. William H. Guy, 500 Penn Avenue, Pittsburgh, Secretary.
American Gastro-Enterological Association, Atlantic City, April 30-May 1. Dr. Russell S. Boles, The Rittenhouse Plaza, Philadelphia, Secretary.
American Gynecological Society, White Sulphur Springs, W. Va., May 21-23. Dr. Otto H. Schwarz, 630 South Kingshighway, St. Louis, Secretary.
American Laryngological Association, Cleveland, June 7-9. Dr. William V. Mullin, 9204 Euclid Avenue, Cleveland, Secretary.
American Neurological Association, Atlantic City, June 4-6. Dr. Henry Alsop Riley, 117 East 72d Street, New York, Secretary.
American Orthopedic Association, Rochester, Minn., June 6-9. Dr. Ralph K. Ghormley, Mayo Clinic, Rochester, Minn., Secretary.
American Psychiatric Association, New York, May 28-June 2. Dr. William C. Sandy, State Education Building, Harrisburg, Pa., Secretary.
American Society for Clinical Investigation, Atlantic City, April 30. Dr. H. L. Blumgart, 330 Brookline Avenue, Boston, Secretary.
American Society of Clinical Pathologists, Cleveland, June 9-11. Dr. A. S. Giordano, 531 North Main Street, South Bend, Ind., Secretary.
American Surgical Association, Toronto, Canada, June 4-6. Dr. Vernon C. David, 59 East Madison Street, Chicago, Secretary.
American Therapeutic Society, Cleveland, June 7-9. Dr. Oscar B. Hunter, 1835 Eye Street, N.W., Washington, D. C., Secretary.
American Urological Association, Atlantic City, May 22-24. Dr. Gilbert J. Thomas, 1009 Nicollet Avenue, Minneapolis, Secretary.
Arizona State Medical Association, Prescott, June 7-9. Dr. D. F. Harbridge, 822 Professional Building, Phoenix, Secretary.
Arkansas Medical Society, Little Rock, April 16-18. Dr. W. R. Brooksher, 602 Garrison Avenue, Fort Smith, Secretary.
Association of American Physicians, Atlantic City, May 1-2. Dr. James H. Means, Massachusetts General Hospital, Boston, Secretary.
California Medical Association, Riverside, April 30-May 3. Dr. Emma W. Pope, 450 Sutter Street, San Francisco, Secretary.
Connecticut State Medical Society, Bridgeport, May 23-24. Dr. Charles W. Comfort, Jr., 27 Elm Street, New Haven, Secretary.
District of Columbia, Medical Society of the, Washington, May 2. Dr. C. B. Conklin, 1718 M Street, N.W., Washington, Secretary.
Florida Medical Association, Jacksonville, April 30-May 2. Dr. Shaler Richardson, 111 West Adams Street, Jacksonville, Secretary.
Georgia, Medical Association of, Augusta, May 8-11. Dr. Allen H. Bunce, 139 Forrest Avenue, N.E., Atlanta, Secretary.
Illinois State Medical Society, Springfield, May 15-17. Dr. Harold M. Camp, Lahl Building, Monmouth, Secretary.
Iowa State Medical Society, Des Moines, May 9-11. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.
Kansas Medical Society, Wichita, May 9-11. Dr. J. F. Hassig, 804 Huron Building, Kansas City, Secretary.
Maine Medical Association, Bangor, May 28-29. Miss Rebekah Gardner, 22 Arsenal Street, Portland, Secretary.
Maryland, Medical and Chirurgical Faculty of, Baltimore, April 24-26. Dr. Walter Dent Wise, 1211 Cathedral Street, Baltimore, Secretary.
Massachusetts Medical Society, Worcester, June 4-6. Dr. Walter L. Burrage, 182 Walnut Street, Brookline, Secretary.
Medical Society Association, Baltimore, May 21-23. Miss Marjorie J. Darrach, 645 Mullett Street, Detroit, Secretary.
Mississippi State Medical Association, Natchez, May 8-10. Dr. T. M. Dye, McWilliams Building, Clarksdale, Secretary.
Missouri State Medical Association, St. Joseph, May 7-10. Dr. E. J. Goodwin, 634 North Grand Boulevard, St. Louis, Secretary.
National Tuberculosis Association, Cincinnati, May 14-17. Dr. Charles J. Hatfield, Henry Phipps Institute, Philadelphia, Secretary.
Nebraska State Medical Association, Lincoln, May 22-24. Dr. R. B. Adams, Central National Bank Building, Lincoln, Secretary.
New Hampshire Medical Society, Manchester, May 15-16. Dr. C. R. Metcalf, 5 South State Street, Concord, Secretary.
New Jersey, Medical Society of, Atlantic City, June 5-8. Dr. J. B. Morrison, 1060 Raymond Avenue, Newark, Secretary.
New York, Medical Society of the State of, Utica, May 14-16. Dr. D. S. Dougherty, 2 East 103d Street, New York, Secretary.
North Carolina, Medical Society of the State of, Pinehurst, April 30-May 2. Dr. L. B. McBrayer, Southern Pines, Secretary.
North Dakota State Medical Association, Fargo, May 28-29. Dr. Albert W. Skelsey, 20½ Broadway, Fargo, Secretary.
Oklahoma State Medical Association, Tulsa, May 21-23. Dr. L. S. Willour, Ainsworth Building, McAlester, Secretary.
Rhode Island Medical Society, Providence, June 7. Dr. J. W. Leech, 167 Angell Street, Providence, Secretary.
Society for the Study of Asthma and Allied Conditions, Atlantic City, N. J., April 28. Dr. W. C. Spain, 116 East 53d Street, New York, Secretary.
South Carolina Medical Association, Charleston, May 1-3. Dr. E. A. Hines, Seneca, Secretary.
South Dakota State Medical Association, Mitchell, May 14-16. Dr. John F. D. Cook, Langford, Secretary.
Texas, State Medical Association of, San Antonio, May 7-10. Dr. Holman Taylor, Medical Arts Building, Fort Worth, Secretary.
Western Branch Society American Urological Association, Los Angeles, April 27-29. Dr. George W. Hartman, 999 Sutter Street, San Francisco, Secretary.
West Virginia State Medical Association, Huntington, May 14-16. Mr. Joe W. Savage, Public Library Building, Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American J. Obstetrics and Gynecology, St. Louis

27: 1-156 (Jan.) 1934

Radiation Therapy in Carcinoma of the Corpus Uteri. W. P. Healy, New York.—p. 1.
Failures in Tubal Sterilization (Madlener): Clinical and Histologic Study. W. H. Rubevits and A. J. Kobak, Chicago.—p. 12.
Fertility in the Male: II. Technic of Spermatozoa Count. D. L. Belding, Boston.—p. 25.
*Significance of Menstrual Disturbances in Pulmonary Tuberculosis: Preliminary Report. H. C. Hesseltine, Chicago, and W. M. Spear, Oakdale, Iowa.—p. 32.
Theca Cell Tumors of the Ovary. P. J. Melnick and A. E. Kanter, Chicago.—p. 41.
Contraception: Neglected Field for Preventive Medicine. O. J. Toland, Philadelphia.—p. 52.
Incidence, Treatment and Mortality of Eclampsia: Analysis of One Hundred and Twenty-Three Cases. J. Binder, Jersey City, N. J. —p. 59.
Possible Derivation of Guanidine and Histamine in Autolysis of Acute Placental Infarcts and Their Probable Relation to Eclamptic Toxemia. R. A. Bartholomew and F. Parker, Atlanta, Ga.—p. 67.
Length of the Human Menstrual Cycle. C. F. Fluhmann, San Francisco.—p. 73.
Sickle Cell Anemia in Pregnancy. A. F. Lash, Chicago.—p. 79.
Placental Necrosis. A. B. Clements, New York.—p. 84.
*Modification in Technic of Bell-Beuttner Operation. F. H. Falls, Chicago.—p. 89.
Blood Chemistry Studies of Normal New-Born Infants: II. Blood Sugar and Alkali Reserve Estimations. A. Holman and A. Mathieu, Portland, Ore.—p. 95.
Tumors of Urethra. C. H. Phillips and Marion D. Douglass, Cleveland. —p. 99.
Treatment of Recent Puerperal Inversion of Uterus: Report of Five Cases. D. N. Barrows, New York.—p. 105.
Nembutal and Scopolamine Analgesia in Labor: Report of One Hundred and Sixty Cases. L. Averett, Philadelphia.—p. 109.
Pathogenicity of Monilia (Castellani), Vaginitis and Oral Thrush: H. C. Hesseltine, Chicago; I. H. Borts and E. D. Plass, Iowa City —p. 112.
Cold Light for Inspection and Transillumination of the Cervix. S. G. Berkow, Perth Amboy, N. J.—p. 117.
Influence of Posture on Movement of Fluid in Trachea of the New-Born: An Experimental Study. D. P. Murphy, Philadelphia.—p. 118.
Congenital Heart Disease in Which Diagnosis Was Made Before Birth: Two Cases. A. L. Dippel, Baltimore.—p. 120.

Menstrual Disturbances in Pulmonary Tuberculosis.—Hesseltine and Spear observed the significance of menstrual disorders in pulmonary tuberculosis in 148 state sanatorium patients. The study seems to indicate that patients comparable to these are likely to have an increased mortality incidence if amenorrhea develops, especially late in the disease. An unexplained amenorrhea in young women may be the first symptom of phthisis. Menstrual temperature increase, not exceeding 1 degree F., appears to be a better prognostic sign than no thermal increase. Hemoptysis and blood-streaked sputum at menstruation were not associated with a poorer prognosis than at other times. Dysmenorrhea appears more likely to occur in parous than in the nulliparous women, yet its incidence seems to decrease with the advance of the disease.

Modification in Technic of Bell-Beuttner Operation.—In Falls' modified technic of the Bell-Beuttner operation, the uterus is exposed, the tubes and ovaries are freed from adhesions, and the advisability of leaving one or both ovaries is carefully considered. A wedge-shaped incision is made in the uterine fundus down to the mucosa from side to side, including the interstitial portion of the tubes but not the attachment of the round ligaments to the uterus. The wedge is from 1 to 2 cm. wide at the top, depending on the size of the uterus. The round ligaments are pulled into the wedge-shaped wound left in the fundus of the uterus by inserting the needle with number 2 chromic catgut through the posterior lip of the uterine wound near its center. The point of the needle emerges close to the mucosa of the uterus and about 2 cm. below the cut edge. The needle is then passed through the broad ligaments just below the round ligament, brought back and inserted through the anterior lip of the uterine wound at about the same level as the stitch through the posterior lip. When this stitch is pulled taut, the round ligament is doubled on itself and drawn into the groove of the fundus of the uterus, which closes over on top of the ligament. Two additional interrupted sutures are placed through the fundus from the posterior to the anterior wall. The wound and the suture line in the uterus are completely peritonized, leaving only one knot of fine catgut exposed, as in the original Beuttner technic. Postoperatively, these uteri are found to be held well up in the pelvis and to be freely movable, and there has been less complaint of disturbance of the bladder and backaches since the adoption of this modification.

American Journal of Surgery, New York

22: 1-218 (Jan.) 1934

Principles Involved in Treatment of Carcinoma Affecting Organs Located in the Male and Female Pelvis. R. C. Coffey, Portland, Ore. —p. 1.
Clinical Value of Experimental Ureteral Implantation. T. J. Kirwin, New York.—p. 14.
Presacral Dermoids. F. H. Lahey and E. B. Eckerson, Boston.—p. 30.
The Present-Day Treatment of Colonic Cancer. F. W. Rankin, Lexington, Ky.—p. 36.
Recent Progress in Cancer Research. J. K. Narat, Chicago.—p. 43.
*Large Malignant Tumor (Sarcoma) of the Uterus with Multiple Bone Metastases (Femur, Pelvic Bones and Skull): Case Successfully Treated by Hysterectomy and Coley's Toxins. D. M. Blum, Des Moines, Iowa; comments by W. B. Coley, New York.—p. 47.
Actinomycosis of Subphrenic Space. A. M. Graves and A. Ochsner, New Orleans.—p. 54.
*Acute Capsulitis of Cystic Degenerated or Partially Degenerated Adenoma of Thyroid Gland: Its Clinical Distinction from Gross Intra-Adenomatous Hemorrhage. W. A. Plummer and A. C. Broders, Rochester, Minn.—p. 63.
Myofascitis. F. H. Albee, New York.—p. 70.
Fractures of the Lower End of the Humerus. E. L. Eliason and C. W. McLaughlin, Jr., Philadelphia.—p. 79.
Spinal Cord Tumors: Notes on Series. F. C. Grant, Philadelphia.—p. 89.
Liver Deaths and Their Prevention: How Danger Can Be Recognized and Avoided by Use of Preoperative and Postoperative Diagnostic Measures. S. Weiss, New York.—p. 96.
Anesthetics, Narcotics and the Sick Man. G. Crile, Cleveland.—p. 102.
General Care of Patient in Anesthesia. S. C. Wiggin, Boston.—p. 106.
Modern Concepts of Genito-Urinary Tuberculosis. G. J. Thomas and T. J. Kinsella, Minneapolis.—p. 111.
Physiology and Pathologic Physiology of Dynamics of Urinary Passageways. M. Muschat, Philadelphia.—p. 129.
Advantages and Applicability of the Torek Orchiopexy for Undescended Testis. A. E. W. Ada, New York.—p. 133.
*Exclusion Operation for Duodenal Ulcer: Experimental and Clinical Study. M. E. Steinberg, Portland, Ore.—p. 137.
Intestinal Evacuation by Hydraulic Suction: Further Uses of Suction Siphonage. G. H. Pratt, Philadelphia.—p. 148.
Acute Appendicitis After Forty: Clinical Review of One Hundred Cases. U. Mars, F. F. Boyce and Elizabeth M. McFetridge, New Orleans.—p. 157.
Congenital Malformations of Anus and Rectum: Report of One Hundred and Sixty-Two Cases. W. E. Ladd and R. E. Gross, Boston. —p. 167.
Spasmodic Torticollis: Recurrent After a Free Interval of Thirty Years. C. W. Rand, Los Angeles.—p. 184.
Improved Technic for Restoration of Pendulous Breasts. A. G. Biddle, New York.—p. 191.
Simplified Dressing for Clean Surgical Wounds. B. I. Golden, Elkins, W. Va.—p. 194.
Treatment of Varicose Ulcers. A. A. Schmier, Brooklyn.—p. 195.

Treatment of Sarcoma of Uterus with Bone Metastases.—Blum reports the case of a large malignant sarcoma of the uterus (removed by hysterectomy) with multiple bone metastases. The roentgenograms indicate that credit for the patient's complete recovery must be given to Coley's toxins. The author thinks it is well worth while to attempt the use of these toxins in any similar condition, although they should not be used to the exclusion of other recognized methods of treatment. Coley has never advocated using the toxins in cases that were operable, except for a brief period in sarcoma of the long bones (endothelial myeloma) in the hope of saving the limb.

Acute Capsulitis of Cystic Degenerated Adenoma of Thyroid.—According to Plummer and Broders, acute, nonsuppurative inflammation in the capsule of a cystic, degenerated or partially degenerated adenoma will cause painful enlargement of the adenoma. The acute symptoms are more or less transitory. In cases in which thyroidectomy is performed, the

histologic evidence of such acute inflammation is frequently not recognized for the reason that (1) sections are not taken from the capsule of the adenoma for microscopic study, (2) or, since the inflammation may be confined to certain portions of the capsule, the sections may not be taken from the regions involved and, (3) even though the capsule is carefully examined, acute or subacute inflammation may have subsided before thyroidectomy is performed. Gross hemorrhage into the substance of a cystic degenerated adenoma of the thyroid does not usually cause enlargement of the adenoma. Acute inflammation in the capsule of a cystic degenerated or partially degenerated adenoma predisposes to gross hemorrhage into the substance of the adenoma, and therefore inflammation and hemorrhage frequently are associated. If enlargement of a cystic degenerated adenoma of the thyroid has occurred gradually for several hours or days and such enlargement has been accompanied by pain, one must assume that the enlargement is the result of acute inflammation. If enlargement of this type of adenoma has reached its maximum within a few minutes, accompanied by severe pressure or pain, it must be assumed that the enlargement is the result of hemorrhage, and at operation recent blood clots will be found in the substance of the adenoma. Since the two conditions are frequently associated, microscopic evidences of acute inflammation are likely to be found in the capsule of the adenoma, and in these cases symptoms that must be attributed to the inflammation will be present also: pain of longer duration, accompanied by tenderness, local heat and possibly fever.

Exclusion Operation for Duodenal Ulcer.—Steinberg used two series of animals for his experiments. Of the first series (twenty-three animals) twenty-one survived. These animals had a typical Finsterer modification of the second Billroth stomach resection with an Exalto shortcircuiting operation and the motor part of the stomach removed. Seven animals, in addition to the foregoing procedure, were subjected to a kink distal to the anastomosis. None of the twenty-three animals developed an ulcer. In the second series of animals a typical Devine operation was performed with an Exalto shortcircuiting of the duodenal contents, and the motor part of the stomach was left in place. There were twelve dogs in this series, and six developed definite large chronic ulcers. In the remaining six dogs, no ulcers were found. A kink distal to the gastroanastomosis was performed in three animals, all of which developed definite chronic ulcers. The von Eiselsberg operation should be abandoned. There is not sufficient clinical evidence to justify a definite expression of opinion on the results of the Devine exclusion operation. From the experimental work and theoretical and anatomic considerations, this operation should influence the production of jejunal ulcers. The author's personal clinical experience in twelve cases with a typical Finsterer exclusion operation has been favorable.

Archives of Dermatology and Syphilology, Chicago

29: 1-172 (Jan.) 1934

The American Board of Dermatology and Syphilology: A Step Forward in the Supervision of Specialism. F. Wise, New York.—p. 1.
LXVII: Lipids of the Skin Surface. M. F. Engman and D. J. Kooyman, St. Louis.—p. 12.
Porokeratosis (Mibelli): Report of Its Occurrence in a Negro. J. V. Ambler, Denver, and K. L. Stout, San Francisco.—p. 20.
*Multiple Ganglioneuromas of the Skin: Report of Case with Differential Diagnosis from Reticulohistiocytic Granuloma, Neuroma, Xanthoma and Recklinghausen's Disease of the Skin. H. Montgomery and P. A. O'Leary, Rochester, Minn.—p. 26.
*Pseudo-Atrophoderma Colli: Hitherto Undescribed Condition. S. W. Becker and Kathleen B. Muir, Chicago.—p. 53.
Elastic Tissue in Fetal Skin. F. W. Lynch, St. Paul.—p. 57.
Francois-Xavier Swediaur 1748-1824. J. E. Lane, New Haven, Conn.—p. 80.
Photography in Dermatology: New Method. K. M. Davenport and A. W. Fuchs, Rochester, N. Y.—p. 92.

Multiple Ganglioneuromas of the Skin.—Montgomery and O'Leary report a case of multiple cutaneous nodules of the skin, which clinically suggested multiple xanthoma but which they believe to be a case of multiple ganglioneuroma with origin from the peripheral sympathetic nervous system. There was no histologic evidence of xanthoma in the early, well developed and involuting lesions. They believe that the large, palely staining cells which predominated in the early nodules presented the principal morphologic features of sympathetic ganglion cells, namely, one or two prominent, densely staining nucleoli, five Nissl granules in the cytoplasm of the cell and multiple dendritic processes. Transitions between endothelial cells, histiocytes and the large palely staining ganglion cells were apparent histologically; this led some pathologists to regard the ganglion cells as histiocytes and the case as one of reticulohistiocytic granuloma. It is the authors' concept, however, that the histiocytes and the inflammatory and granulomatous changes seen in association with the ganglion cells are more satisfactorily explained as the results of a secondary process, which, possibly because of interference with the vascular supply, resulted in disappearance of the ganglion cells and spontaneous involution of the lesions. The presence of multiple cutaneous tumors composed chiefly of ganglion cells is probably best explained on the basis of a malformation.

Pseudo-Atrophoderma Colli.—During the last five years, Becker and Muir observed two women patients with a dermatosis which seems to be a clinical entity, and in the cases observed there were no physical abnormalities. The patients were young Jewish girls. Clinical examination did not verify the preliminary impression of atrophy. The histologic section from one case did not show definite atrophy, although O'Leary stated that epidermal atrophy was found in sections from one of his cases. Therapy for seborrheic dermatitis had no effect on the lesions in one case, and rather strong salicylic acid ointment did not improve the condition in another case. The designation "pseudo-atrophoderma colli" is suggested for this condition. The appearance of the lesions was that of a pigmentary disturbance suggesting vitiligo. The lesions appeared to be atrophic. On close inspection the apparently depigmented portion was seen to be glossy, and the apparently pigmented regions consisted of epidermis thrown up into tiny folds. When the skin was put under tension, the contrast between the shiny and the dull areas was less marked but was still visible, and the dull areas were covered with fine scales. When traction was released, wrinkling was again apparent. While it was difficult to outline the individual lesions, the shiny pseudoatrophic plaques seemed to be arranged largely in a vertical direction.

Archives of Surgery, Chicago

27: 979-1166 (Dec.) 1933

Radiosensitivity of Tumors. F. W. Stewart, New York.—p. 979.
Experimental Chronic Arthritis (Synovitis) Produced by Intra-Articular Injections of Bacterial Filtrates and Other Foreign Proteins. A. Brunschwig and Lucy Dell Henry, Chicago.—p. 1065.
*Sympathetic System and Pain Phenomena. R. C. Shaw, Preston, England.—p. 1072.
*Absorption in Intestinal Obstruction. R. R. Best, L. A. Newton and R. Meidinger, Omaha.—p. 1081.
Primary Malignant Disease of Duodenum. S. A. Eger, Cleveland.—p. 1087.
Nasopharyngeal Carcinoma. O. Christianson and S. W. McArthur, Chicago.—p. 1109.
Action of Cathartics on Isolated Dog's Colon: I. Secretory Activity. L. M. Larson, Minneapolis, and J. A. Bargen, Rochester, Minn.—p. 1120.
Id.: II. Motor Activity. L. M. Larson, Minneapolis, and J. A. Bargen, Rochester, Minn.—p. 1130.
Review of Urologic Surgery. A. J. Scholl, Los Angeles; E. S. Judd, Rochester, Minn.; L. D. Keyser, Roanoke, Va.; J. Verbrugge, Antwerp, Belgium; A. A. Kutzmann, Los Angeles; A. B. Hepler, Seattle, and R. Gutierrez, New York.—p. 1146.

Sympathetic System and Pain Phenomena.—Shaw points out that the sympathetic fibers may conduct afferent stimuli subserving common sensation after the extirpation of the somatic innervation; this function appears to develop gradually after removal of the spinal nerve supply. Sympathetic fibers convey impulses of pain in certain types of intractable neuralgia which are distinct from the conditions of pain conveyed by the spinal system. The sympathetic system acts as a control on the somatic sensory thresholds, and the removal of this influence is followed by a temporary increase of common sensitivity. The anatomic sympathetic pathway in the cervicothoracic region contains spinal sensory fibers, the irritation of which might result in a composite type of neuralgic pain. Surgical ablation of the paraspinal ganglions will definitely cure the sympathetic type of intractable neuralgia through the removal of the mechanism of pain. Periarterial sympathectomy will certainly relieve pain in similar conditions, and the operation produces its results by the induction of an inhibitory phase through the radiation of molecular shock throughout the sympathetic neural circuit.

Absorption in Intestinal Obstruction.—Best and his associates carried out experiments in the hope that definite conclusions might be drawn as to the rate and selectivity of absorption above and below an obstruction. In the group in which methylene blue (methylthionine chloride) is known to have been recovered from the urine after its absorption from the intestine, there was only a slight variation in time, which could be accounted for by the difference in the size of the animals and particularly by the variations in the amount of retained secretions above the obstruction. An animal with a smaller amount of intestinal contents above the obstruction would have a greater concentration of the dye, and absorption would probably be more rapid than in an animal with greater retention. In no case was the absorption more rapid above the obstruction than it was in the normal dog. When the dye was injected into the lumen below the level of the duodenal or ileac obstructions, the time of its appearance in the urine varied between fifty and seventy minutes, showing that there was no increase and only a slight decrease in absorption below the level of obstruction. The authors were unable to demonstrate any increase in the rate or selectivity of absorption above or below the level of obstruction. Their experiments suggest that there is no increase in the rate or selectivity of absorption above the obstruction, and this seems strong evidence that increased absorption above the obstruction cannot be the cause of death. Their experiments also tend to rule out the probability of increased absorption below the obstruction. They believe that it is within the realm of probability that death following intestinal obstruction is due to a failure of neutralization or buffer reaction to take place between the upper and lower intestinal contents in the lower part of the intestine. This need not be interpreted in terms of the development of a definite toxin but rather of a physiochemical reaction that usually takes place when the contents of the upper and lower parts of the intestine are permitted to intermix. With this phenomenon there occurs absorption or failure of absorption of a substance, x, which causes a disturbance not in accord with normal cellular function and incompatible with life. Clinically, the authors' best evidence of this is the fact that an obstruction of the distal colon is compatible with life for some time. This may be explained by the fact that the intermixture of the upper and lower intestinal contents has already occurred above the obstruction and absorption has taken place. If the obstruction occurs above the distal colon, in the more active secreting levels and the absorption area, death occurs earlier than in the case of a lower obstruction. Thus, in a subject with an ileostomy, partial admixture and absorption have already taken place; but with complete duodenostomy or jejunostomy, this admixture and absorption have not taken place and death occurs much earlier in the latter than in the former condition.

Canadian Public Health Journal, Toronto

25: 1-52 (Jan.) 1934

Safe Milk. W. J. Bell.—p. 1.
Brucella Abortus Infection in Cattle in Relation to Milk. R. Gwatkin, Toronto.—p. 5.
Undulant Fever in Ontario. A. L. McNabb, Toronto.—p. 10.
*Milk and Its Relation to Tuberculosis. R. M. Price, Toronto.—p. 13.
Home Pasteurization of Milk. N. E. McKinnon, Toronto.—p. 16.
Importance of Dairy Farm Inspection. J. B. Hollingsworth, Ottawa, Ont.—p. 17.
Epidemics in Canada Due to Milk-Borne Infection. R. H. Murray, Regina, Sask.—p. 19.
Nutritional Value of Pasteurized Milk. E. W. McHenry, Toronto. —p. 22.
Model Milk By-Laws. O. V. Ball, Toronto.—p. 25.
The Public and Pasteurization. R. H. Murray, Regina, Sask.—p. 28.
Extent of Pasteurization in Canada. R. H. Murray, Regina, Sask. —p. 30.
Clean Bottles, a Factor in Clean Milk: Preliminary Report. W. J. Deadman and F. J. Elliott, Hamilton, Ont.—p. 32.
Sanitary Caps for Milk Bottles. A. T. Byram, Toronto.—p. 35.
Common Defects in Pasteurizing Plants, Including a Survey of Pasteurizing Plants in a Large City. A. E. Berry, Toronto.—p. 36.
Improper Pasteurization and Its Results. A. L. McKay, Toronto. —p. 44.
Pasteurizing Equipment for Small Dairies. E. W. Johnston, Toronto. —p. 45.
Need for Supervision of Milk Supplies. A. E. Berry, Toronto.—p. 47.

Milk and Its Relation to Tuberculosis.—In a study of 300 tuberculous children in Toronto, Price found that 15 per cent of the extrapulmonary tuberculosis (e. g., bone, joint, lymph nodes, kidney and skin) was due to the bovine type of tubercle bacillus. Infection with the bovine type occurred most often in the region of cervical lymph nodes. All the patients infected with the bovine type of tubercle bacillus had used raw milk and resided outside Toronto. The clinical investigation indicated the alimentary route of infection. The majority of children infected with the human type gave a history of contact with human tuberculosis. The clinical investigation indicated the respiratory route of infection. Of 200 samples of unpooled raw milk examined, eight yielded tubercle bacilli on direct smear and guinea-pig inoculation. Of 100 samples of pooled raw milk, twenty-six yielded tubercle bacilli. Of 100 samples of the same milk, pasteurized, none showed tubercle bacilli on guinea-pig inoculation. This observation is confirmed by the fact that not a single case of bovine tuberculous infection has been encountered in this generation of children raised on pasteurized milk in Toronto, where pasteurization is compulsory and has been rigidly enforced since 1915.

Delaware State Medical Journal, Wilmington

6: 1-22 (Jan.) 1934

Medicine: Past and Present. A. Stengle, Philadelphia.—p. 1.
Pink Pills and Panaceas. A. J. Cramp, Chicago.—p. 5.
Cystitis: Its Cause and Treatment. N. R. Washburn, Milford.—p. 7.

Journal of Nervous and Mental Disease, New York

79: 1-124 (Jan.) 1934

Paradoxical Symptoms in Right Temporal Lobe Tumor. L. Stone, Topeka, Kan.—p. 1.
Paralysis Agitans and Trauma. L. Grimberg, New York.—p. 14.
Mental Factors in the World Depression. P. Federn, Vienna, Austria. —p. 43.
*Manganese Treatment of "Schizophrenic Disorders." R. G. Hoskins, Worcester, Mass.—p. 59.

Manganese Treatment of Schizophrenic Disorders.—Hoskins treated nine schizophrenic patients with manganese chloride by mouth over a period of several weeks without detectable influence on the psychosis. Thirty patients were subjected to intramuscular injections of a colloidal preparation of manganese (0.32 per cent manganese) over an average period of forty-nine days, with an average total dosage of 227 cc. Several representative metabolic features were investigated at the beginning and at the conclusion of the medication. The results of the latter study were convincingly negative as regards both the clinical and the metabolic conditions of the patients. These negative results suggest that beneficial effects claimed by certain earlier investigators may have been due to unintentional psychotherapy.

Journal of Thoracic Surgery, St. Louis

3: 109-220 (Dec.) 1933

*Abscess of Lung with Pleural Effusions. E. Sergent and M. Iselin, Paris, France.—p. 109.
*Treatment of Pulmonary Abscess by Peripheral Lung Fixation and Regional Thoracoplasty. R. H. Overholt, Boston.—p. 134.
Fixation of Chest Lesions with Subsequent Compression. W. P. Herbert, Asheville, N. C.—p. 153.
Present Status of Thoracoplasty: Results and Technic. E. J. O'Brien, Detroit.—p. 159.
Causes of Death from Thoracoplasty in Pulmonary Tuberculosis: Analysis of Five Cases. H. L. Beye, Iowa City.—p. 166.
Collapse Therapy and the Ambulatory Patient. J. A. Myers, Minneapolis.—p. 175.
*Detailed Description of a Safe and Reliable Method for Closing Large Bronchi. W. E. Adams, Chicago.—p. 198.

Abscess of Lung with Pleural Effusions.—The association of a lung abscess with a pleural effusion seems to Sergent and Iselin to be much more serious than previous reports indicate. In eleven cases reported by the authors there were nine deaths. Five of these were seen after a thoracostomy had been performed by others, the operation being followed by a more or less marked aggravation of symptoms. In only two did a thoracostomy suffice to cure the empyema and the lung abscess at the same time. In five cases thoracostomy was unable to effect a cure. It produced an amelioration, but the abscess continued to develop, leading to death at an interval varying from six weeks to eight months. From an anatomic point of view these cases were characterized by a pleural pocket of small dimensions and from a clinical standpoint they took the form of a chronic pleural fistula with progressive impairment of general health. In four cases thoracostomy led to a veritable catastrophe: the abscess had been crowded into the depths by

a considerable pneumothorax. The pleural pocket was then of large dimensions and the clinical picture one of a pleural suppuration persisting in spite of good pleural drainage. All the patients died in from six days to six weeks. Treatment depends on the difficulty of recognizing the existence and the situation of the abscess and the frequent multiplicity of pus pockets, pleural as well as pulmonary. In encapsulated pleural effusions the relatively slow impairment of general health after thoracostomy leaves time to locate and open successively residual pulmonary or pleural pockets. In diffuse effusions the situation after thoracostomy becomes alarming so rapidly that subsequent operations are of considerable gravity. Treatment should bend its efforts toward prevention by unearthing an abscess under the purulent pleurisy that masks it and by draining it after the effusion becomes encapsulated.

Treatment of Pulmonary Abscess.—Overholt applied clinically the principle of peripheral lung fixation and regional, extrapleural compression over an abscess area in three cases. Each patient had pulmonary suppuration to a sufficient degree to be wholly incapacitated and bedridden for a large part of the time. All were treated without the necessity of lung cauterization and external drainage. All patients were hospitalized a comparatively short period of time. In each case a sufficient period has elapsed since operation without recurrence of symptoms to warrant a preliminary report. The longest period of hospitalization for investigation and operation was five weeks. All patients were discharged with an intact thoracic wall and with their cough and expectoration reduced to minimal amounts. Follow-up studies have shown that continued and satisfactory improvement occurred in all, with disappearance of practically all symptoms. A sufficient length of time has elapsed to indicate permanence of the results. In the selection of cases for regional thoracoplasty, the necessity of ruling out foreign body and bronchiectasis has been emphasized. It is also important to demonstrate the adequacy of internal drainage. The choice of regional thoracoplasty in the surgical management of pulmonary abscess need not necessarily be limited, however, on account of uncertainty as to bronchial drainage. The formation of pleural adhesions and the collapse procedure can be carried out and, if there is failure to cure, cauterization of the underlying lung can be resorted to later and external drainage provided. In other words, a less serious and less radical type of operation is proposed for surgically treating lung abscess, which may be sufficient to effect a cure.

Method for Closing Large Bronchi.—The unsatisfactory results of others in attempting to occlude large bronchi experimentally by the silver nitrate technic has led Adams to describe the following method, which he has used more than 250 times with no mortality: Morphine, 0.015 Gm., and atropine, 0.0004 Gm., per kilogram of body weight are given from one-half to one hour before bronchoscopy. With the animal secured in the dorsal position, a bronchoscope is introduced and passed down to the carina. The applicator consists of a number 8 gage iron wire with threads cut at one end, about which a small piece of absorbent cotton is secured firmly. A small firm swab is necessary to obviate the danger of the cauterizing agent running down into the air passages when the swab is applied to the bronchial mucosa. The danger is further obviated by pressing the swab against the mouth of the silver nitrate container after it has been saturated with a 35 per cent solution and rotating it to wring out as much of the solution from the swab as possible. If the bronchus to be occluded is small, the swab is simply thrust into it and held in place for about ten seconds. In larger bronchi, as the swab is brought firmly in contact with the bronchial wall, the applicator is slowly rotated, thus rolling it around the entire circumference of the bronchus. As it is being rotated, a to and fro movement is made, as though one were massaging the surface. The bronchus is thus well cauterized, the white area standing out in sharp contrast to the normal pink mucosa. The cauterized area should be about 1 cm. in width and include the entire circumference of the bronchus. An applicator with a curved tip is of value in cauterizing upper lobe bronchi. Complete occlusion occurs in from ten days to two weeks, depending on the size of the bronchus. If one application does not produce complete occlusion of the bronchus, the procedure is repeated.

Laryngoscope, St. Louis

44: 1-84 (Jan.) 1934

Brief History of the Early Development of the Anatomy of the Ear. Dorothy Wolff, St. Louis.—p. 1.
Oral Mycoses: Clinical Aspect of Oral Mycology. D. MacFarlan, Philadelphia.—p. 29.
Id.: Dental Aspects of Oral Mycoses. C. W. Riggall, Jr., Philadelphia. —p. 35.
Id.: Laboratory Diagnosis of Oral Mycoses. F. D. Weidman, Philadelphia.—p. 41.
Experiments on Utricle. W. J. McNally, Montreal.—p. 50.
Recovery After Streptococcic Meningitis Following Otitic Sepsis. L. Kleinfeld, New York.—p. 56.
Use of Fresh Sheep Head for Teaching the Technic of Submucous Resection of Nasal Septum. W. Morrison, New York.—p. 59.
Case Presentation of Brain Abscesses Originating in Otorhinologic Foci. L. M. Davidoff, New York.—p. 62.
Neutropenia. P. Reznikoff, New York.—p. 66.
Sinusitis in Children. R. Luongo, Philadelphia.—p. 71.
An Overlooked Factor in Susceptibility to the Common Cold. A. E. Ewens, Atlantic City, N. J.—p. 78.

Minnesota Medicine, St. Paul

17: 1-52 (Jan.) 1934

Correlative Value of Clinical and Pathologic Findings in Roentgen Diagnosis. K. Ikeda, St. Paul.—p. 1.
Postoperative Peritoneal Adhesions: Causes and Prevention. A. E. Benjamin, Minneapolis.—p. 4.
Surgical Treatment of Congenital Clubfoot. G. A. Williamson, St. Paul.—p. 12.
Amebiasis: Report of Case Complicated by Liver, Lung and Brain Abscess. J. N. Gehlen, St. Paul.—p. 18.
Treatment of Enuresis. H. S. Lippman, St. Paul.—p. 23.
Sarcoma of Second Metacarpal Bone: Case Report and Review. A. E. Olson, Duluth.—p. 24.
Allergic Factor in Migraine. H. B. Sweetser, Jr., Minneapolis.—p. 31.
The "Do's and Don'ts" of the Injection Treatment of Varicose Veins. H. O. McPheeters, Minneapolis.—p. 33.

New England Journal of Medicine, Boston

209: 1315-1382 (Dec. 28) 1933

Regional Ileitis: Clinical, Not a Pathologic Entity. J. Homans and G. M. Hass, Boston.—p. 1315.
Evaluation of Signs and Symptoms in Diagnosis of Extra-Uterine Pregnancy: Review of Ninety Cases. A. F. Jonas, Jr., Baltimore. —p. 1324.
Complete Surgical Removal of Stomach for Hour-Glass Deformity Caused by Carcinoma. W. R. Morrison, Boston.—p. 1329.
Spontaneous Intraperitoneal Hemorrhage of Unknown Origin Complicating Pregnancy: Report of Two Cases. E. d'Errico, Boston.—p. 1331.
Efficacy of Mandelamine as a Bactericidal Agent in Urinary Tract Infections. V. Vermooten, New Haven, Conn., and R. V. Berry, Bangall, N. Y.—p. 1332.
Status of Vasography. E. A. Edwards, Brookline, Mass.—p. 1337.
Device for Making Radiographs of Gastro-Intestinal Tract. R. Dresser and F. Scholz, Boston.—p. 1343.
Cardiovascular Review for 1932. P. D. White, Boston.—p. 1346.

210: 1-58 (Jan. 4) 1934

*The Association of Diabetes and Tuberculosis: Epidemiology, Pathology, Treatment and Prognosis. H. F. Root, Boston.—p. 1.
Sugar Tolerance in the Arthritic. H. A. Nissen and K. A. Spencer, Boston.—p. 13.
Cardiovascular Review for 1932. P. D. White, Boston.—p. 20.

The Association of Diabetes and Tuberculosis.—Root observed that the incidence of active tuberculosis in 1,121 diabetic necropsies was 28.4 per cent, and in 51,705 nondiabetic necropsies 22.9 per cent. Since the association of the two diseases would be expected less than half as frequently as the incidence of tuberculosis alone, it follows that active tuberculosis occurred in diabetic patients at necropsy between two and three times as frequently as expected. Tuberculous infection in diabetic children as shown by skin tests and calcified tracheobronchial glands is more common than in Massachusetts school children, and the development of adult type pulmonary tuberculosis in a group of 750 children who developed diabetes before the age of 15 years was more than thirteen times as frequent as among Massachusetts school children. Among adolescent diabetic patients who developed the disease between the ages of 15.1 and 19.9 years, pulmonary tuberculosis occurred sixteen times as frequently as among Massachusetts high school students. Among 1,373 diabetic adults, examined roentgenologically, active pulmonary tuberculosis was found in thirty-eight cases, or 2.8 per cent. Deaths from pulmonary tuberculosis among diabetic persons increased from 4.7 per cent of 342 deaths before June 1919 to 6.7 per cent of 1,503 deaths between Aug. 7, 1922, and Nov. 2, 1931, in spite of the decreasing tuberculosis mortality in the community. The factors of familial contact, race,

occupation, housing, poverty and alcoholism do not appear to explain the greatly increased incidence of pulmonary tuberculosis in diabetes.

New York State Journal of Medicine, New York

33: 1423-1478 (Dec. 15) 1933

Diagnosis of Glaucoma Simplex. S. B. Marlow, Syracuse.—p. 1423.
Pathology of Chronic Simple Glaucoma. A. B. Reese, New York.—p. 1428.
Operative Treatment of Chronic Glaucoma: Report of Two Hundred Successive Operations. A. Knapp, New York.—p. 1431.
Medical Treatment of Chronic Simple Glaucoma. W. Zentmayer, Philadelphia.—p. 1433.
Syphilis of the Lung: Report of Four Cases with Autopsy Findings. H. C. Denman, Brooklyn.—p. 1438.

34: 1-40 (Jan. 1) 1934

Treatment of Toxemias of Pregnancy. B. P. Watson, New York.—p. 1.
Nephritis and Pregnancy. K. Kuder and H. J. Stander, New York.—p. 5.
Treatment of Carcinoma of the Cervix. W. P. Healy, New York.—p. 10.
Treatment of Tumors of the Ovary. H. C. Taylor, Jr., New York.—p. 13.
Treatment of Uterine Myomas: Review of Five Hundred Cases. R. A. Kimbrough, Jr., Philadelphia.—p. 18.

Treatment of Tumors of the Ovary.—Taylor points out that the extent of treatment required in a given case of ovarian tumor depends on the following factors: 1. The tendency to develop to a great size is an important consideration in deciding the first question of whether or not to operate. Certain of the small, non-neoplastic cysts will remain relatively stationary or will regress, while others, such as the pseudomucinous cysts, will almost inevitably reach enormous proportions. 2. The tendency to develop various complications, particularly torsion, represents a hazard of varying importance among the different types of even the benign tumors and, under certain circumstances, is a reason against delay in operating. 3. The tendency to bilateral development must be the chief guide in determining the advisability of limiting the operation in a given case to the removal of only one ovary. 4. The frequency of the malignant transformation of benign tumors remains a disputed question. Percentages, however, are offered in the literature based either on the cases in which malignant areas are found within otherwise benign tumors or on the proportion of the malignant to the benign growths among tumors of supposedly similar histogenesis.

Public Health Reports, Washington, D. C.

49: 1-52 (Jan. 5) 1934

Influenza Epidemic of 1928-1929 in Fourteen Surveyed Localities in the United States: An Analysis, According to Age, Sex and Color, of the Records of Morbidity and Mortality Obtained in the Surveys. S. D. Collins.—p. 1.

Southern Surgeon, Atlanta, Ga.

2: 97-176 (June) 1933

Fundamentals of Surgery. R. Wilson, Charleston, S. C.—p. 97.
Rational Treatment of Acute Peritonitis. T. G. Orr, Kansas City, Kan.—p. 102.
Pyelonephritis of Pregnancy. G. R. Livermore, Memphis, Tenn.—p. 110.
Dyspareunia. L. F. Turlington, Birmingham, Ala.—p. 117.
Surgical Progress from a Physiologic Standpoint: Considerations of the Biliary System and of the Stomach and Duodenum. R. O. Lyday, Greensboro, N. C.—p. 123.
Nephrostomy in Theory and Practice. H. Cabot, Rochester, Minn.—p. 129.
Division of Plastic Surgery: Its Organization, Its Needs and Its Field of Usefulness. J. S. Davis, Baltimore.—p. 136.
Various Functions of the Testes. W. E. Lower, Cleveland.—p. 143.
Skeletal Traction for Dislocation of Cervical Spine: Report of Case. W. G. Crutchfield, Richmond, Va.—p. 156.
Side Lights on Pathology of Appendicitis. H. A. Royster, Raleigh, N. C.—p. 160.

Southwestern Medicine, Phoenix, Ariz.

18: 1-42 (Jan.) 1934

Recent Advances in the Therapy of Malignant Neoplasms of the Head and Neck. M. R. Guttman, Chicago.—p. 1.
Place of Allergy in Modern Medicine. L. O. Dutton, El Paso, Texas.—p. 5.
Allergy in Relation to Urogenital Tract. D. M. Davis, Phoenix, Ariz.—p. 9.
Impressions of Surgery in Europe. J. L. Green, Jr., El Paso, Texas.—p. 12.
Smallpox. I. J. Bush, El Paso, Texas.—p. 17.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

56: 353-504 (Dec.) 1933

Postural Relations of Frontal and Motor Cortex of the Dog. C. N. Woolsey.—p. 353.
Encephalic Control of Tone in Musculature of the Urinary Bladder. O. R. Langworthy and L. C. Kolb.—p. 371.
Observations on Paralyzed Bladder. G. Holmes.—p. 383.
State of Bladder and Its Sphincters in Complete Transverse Lesions of Spinal Cord and Cauda Equina. D. Denny-Brown and E. G. Robertson.—p. 397.
Perception of Flicker in Lesions of Visual Pathways. G. Phillips.—p. 464.
Leiodystonia, Endocrine-Autonomic Neurosis of Tropics. P. M. Van Wulfften Palthe.—p. 479.

British Journal of Experimental Pathology, London

14: 367-436 (Dec.) 1933

Observations on Antiphage Serums: I. "The Percentage Law." C. H. Andrewes and W. J. Elford.—p. 367.
Id.: II. Properties of Incompletely Neutralized Phage. C. H. Andrewes and W. J. Elford.—p. 376.
Effect of Hypophysectomy on Growth of the Walker Rat Tumor. C. S. McEuen and D. L. Thomson.—p. 384.
Experiments on Filtration of Yellow Fever Virus Through "Gradocol" Membranes. G. M. Findlay and J. C. Broom.—p. 391.
Reaction of Arterial Blood in Cancer. Sylvia Dickinson and R. E. Havard.—p. 394.
Differentiation of Virus of Vesicular Stomatitis from Virus of Foot and Mouth Disease by Filtration. I. A. Galloway and W. J. Elford.—p. 400.
Effect of Repeated Injections of a Bacterial Vaccine. W. W. C. Topley.—p. 408.
Further Observations on Electric Charge of Erythrocytes in Certain Protozoal Diseases. H. C. Brown.—p. 413.
Nature of Tumors Induced in Fowls by Injections of Tar. J. McIntosh.—p. 422.

Journal of Mental Science, London

79: 563-872 (Oct.) 1933

Mental Deficiency. F. D. Turner.—p. 563.
Community Control of Mental Deficiency in the United States. E. A. Doll.—p. 578.
Interaction of Heredity and Environment. L. Hogben.—p. 590.
Juvenile Types of General Paralysis. R. M. Stewart.—p. 602.
Emotional Factors in Intellectual Retardation. E. Miller.—p. 614.
*Cholesterol: Its Relation to Mental Disorder. A. G. Duncan.—p. 626.
*Somnifaine Narcosis: Toxic Symptoms and Their Treatment by Insulin. R. Ström-Olsen.—p. 638.
*Factor of Hypoglycemia in Etiology of Idiopathic Epilepsy. R. L. H. Minchin.—p. 659.
Ketogenic Diet in Epilepsy. S. M. Allan.—p. 677.
Studies in Epilepsy. F. L. McLaughlin.—p. 688.
Studies in Experimental Psychiatry: IV. Deterioration of "G" in Psychotic Patients. Constance Simmins.—p. 704.
Studies in Perseveration. D. E. Cameron and T. G. B. Caunt.—p. 735.
Occupational Therapy from the Therapist's Standpoint. Jean West.—p. 746.

Cholesterol: Its Relation to Mental Disorder.—Duncan summarizes his seven years study of the relation of cholesterol in mental disease. He observed that the blood cholesterol is lowered in certain general conditions affecting the organism as a whole: (1) heightened emotion and quickened psychomotor activity, (2) fever and (3) hyperthyroidism. A factor common to all these is an increased metabolic rate. Blood cholesterol is raised in apathy and diminished psychomotor activity and in subthyroidism. In each of these conditions there is a diminished metabolic rate. The properties of cholesterol are such that, when the cholesterol in blood and tissues is lowered, an increase of the metabolic rate is to be expected; when cholesterol is increased, diminished metabolism should result. The analysis of actively growing tissue supports this view. Therapeutically induced diminution of the blood cholesterol acts on the nervous system, in some cases at least, as a stimulant, causing increased mental activity. Therapeutic raising of the blood cholesterol acts on the nervous system, in some cases, as a sedative, causing diminished mental activity. It is concluded that cholesterol is one of the controlling factors of cellular metabolism and that neurons are susceptible to quantitative changes of this substance in their environment.

Barbituric Acid Narcosis: Treatment by Insulin.—Ström-Olsen describes a modification of technic by which it was possible to eliminate dangerous toxic manifestations in

narcosis in which 2 cc. of a barbituric acid derivative (somnifaine) was given intramuscularly. This was sufficient to induce sleep. From then on an average of from 5 to 6 cc. in twenty-four hours was administered to subjects in robust health—a quantity that was adequate for the production of a fairly deep narcosis. Injection at regular intervals is not advocated. Some persons may develop toxic symptoms after only a few injections. A large proportion of these symptoms are due to upset of carbohydrate metabolism of the liver and the heart by the narcotic, and the administration of insulin and dextrose is an integral part of the treatment and a rational method of prevention. In the author's forty-six treatments on forty patients, fourteen were not given dextrose or insulin, in fifteen dextrose and insulin were administered immediately on the appearance of ketonuria or other toxic symptoms, and in seventeen dextrose and insulin were given from the commencement of treatment. In the first group ketonuria developed in six instances and narcosis had to be cut short in five, in two on account of circulatory collapse and in three because of marked ketosis, drowsiness and vomiting. Of the remaining eight treatments, four proceeded normally, while in the other four smaller quantities of the barbituric acid were given to avoid complications. In twelve of the fifteen treatments in the second group ketonuria developed, while in the remaining three other toxic symptoms supervened. As soon as ketonuria appeared, from 5 to 15 units of insulin was given with the next dose of the barbituric acid, followed by the ingestion of from 1 to 1½ ounces (30 to 45 Gm.) of dextrose. The optimal dose of insulin varied from one individual to another. In the remaining three cases no ketonuria was evident, but other toxic symptoms developed. In the group in which insulin and dextrose were administered from the beginning of the course and tolerably large doses of the barbituric acid were given throughout, none of the seventeen patients thus treated developed ketonuria, except one, in whom it appeared on the sixth day. In this patient insulin was increased from 20 to 30 units daily, and the immediate effect was the entire disappearance of ketosis during the remainder of the course. These patients remained singularly free from alarming symptoms, especially circulatory collapse, and in no instance was narcosis prematurely discontinued. Other toxic symptoms that remained in abeyance were extreme drowsiness, cyanosis, coldness of the extremities and vomiting. Insulin seems to have no effect in preventing pyrexia, oliguria, albuminuria and leukocytosis, for these symptoms occurred with equal frequency in the three groups.

Hypoglycemia in Idiopathic Epilepsy.—Minchin investigated the blood sugar values of a series of epileptic patients in order to find whether hypoglycemia might not be the causative factor in idiopathic epilepsy. The author observed that epilepsy is associated with a low fasting blood sugar. The dextrose tolerance curve in epilepsy shows that the islets of Langerhans are overactive. Drugs that are beneficial in epilepsy raise the blood sugar level (except bromides, which reduce the irritability of the cerebral cortex). In the post-convulsive phase of epilepsy the immunity from fits is associated with raised blood sugar. Variations in the balance of the autonomic nervous system have little influence on the incidence of fits. Natural recovery from epilepsy is associated with the onset of hypo-insulinism.

Journal Obst. and Gynec. of Brit. Empire, Manchester

40: 1125-1302 (Dec.) 1933

Pathology of Ovarian Tumors: Part VI. W. Shaw.—p. 1125.
*Early Signs of Preeclamptic Toxemia, with Especial Reference to the Order of Their Appearance and Their Interrelation. F. J. Browne.—p. 1160.
*Alleviation of Pain in Five Hundred and Sixty Cases of Spontaneous Labor. Louise McIlroy and Helen E. Rodway.—p. 1175.
Studies of Movements of the Uterus (1). T. N. Morgan.—p. 1196.
Granulosa-Cell Tumor in Both Ovaries with Metastases in the Corpus and Cervix Uteri. A. J. M. Holmer.—p. 1207.
Exstrophy of Bladder Associated with Pregnancy and Labor. J. B. Dawson.—p. 1214.
Full Time Ectopic Gestation: Report of Two Cases. W. C. Spackman.—p. 1220.
Menopausal Menorrhagia and Its Treatment by Radium. A. Broido.—p. 1224.

Early Signs of Preeclamptic Toxemia.—To obtain information regarding the order of appearance of the early symptoms and signs of preeclamptic toxemia and the relation of the symptoms and signs to each other, Browne analyzed the records of 320 patients. The evidence brought forward shows that, whatever the cause of preeclamptic toxemia may be, it is something that can cause each of the signs and symptoms directly. That is, each sign and symptom, such as hypertension, albuminuria and edema, is due directly to the toxic agent, and each is produced independently of the other. Hypertension does not cause albuminuria or edema, nor does albuminuria cause edema or edema hypertension or albuminuria. The minor early symptoms, such as headache and sickness, also seem to be due to the direct action of a toxic agent rather than to the increased intracranial pressure of cerebral edema or to the vascular changes of hypertension. The author states that, if his observations and the conclusions based on them are correct, it will be possible to narrow considerably the field of investigation into the causation of preeclamptic toxemia. Several illustrations of this assertion will suggest themselves, but he presents only two: 1. It might be assumed that a possible cause of preeclamptic toxemia is the increase in the volume of the blood that takes place normally in pregnancy, combined with a lack of vasomotor correlation due to some defect, congenital or acquired, in the "blood pressure restrainers" in the carotid sinus. But, although this might give rise to hypertension, many other clinical features would still remain unexplained. 2. Preeclamptic toxemia cannot be due solely to a blood pressure-raising hormone such as epinephrine, for, while such a substance might, if present in sufficient quantities, give rise to hypertension, the hypertension would not cause the other characteristic clinical phenomena.

Alleviation of Pain in Labor.—McIlroy and Rodway state that 560 primiparas delivered spontaneously were given sedatives and anesthetics during labor and delivery. During the first stage, morphine, with or without potassium bromide and chloral hydrate, were given. During the second stage of labor the anesthetic that gave the most favorable results was undoubtedly a mixture of gas and oxygen. During delivery in some cases the mixture was supplemented by chloroform or ether. It was found that a combination of potassium bromide and chloral hydrate in the first stage is a useful and safe sedative, especially in excitable and nervous patients, and it has no apparent effect in lessening uterine contractions. Vomiting is avoided by sipping the drugs dissolved in at least 6 ounces of water with dextrose or lemonade. Morphine is the most valuable of all sedatives. It is rare to find any adverse effect on the mother or the fetus. It is much safer than many of the toxic barbiturates now in use. Its effect is intensified and prolonged by giving it in a 50 per cent solution of magnesium sulphate. In many cases an alteration in the frequency or duration of uterine contractions was not noticeable. In some cases, the intervals between the pains were prolonged but the pains were increased in intensity. Observations on the effect of morphine on the infant showed that spontaneous respiration took place no matter how late the drug was administered. Of 600 cases in which delay in the birth of the infant occurred, in nine mothers morphine had been administered within four hours of birth, and no difference was noted between the infants in these cases and those of delay due to unknown causes. Resuscitation was effected by means of carbon dioxide and oxygen. Nitrous oxide gas and oxygen gave the best results in the second stage of labor and during delivery. The duration, strength and frequency of the contractions increased in more than 50 per cent of the cases. There were no cases of postpartum hemorrhage due to the administration of anesthetic drugs.

Practitioner, London

131: 629-724 (Dec.) 1933

Constipation and Allied Problems. C. Watson.—p. 629.
Significance and Treatment of Diarrhea. J. P. Lockhart-Mummery.—p. 636.
Treatment of Diarrhea in Childhood. R. W. B. Ellis.—p. 642.
Modern Treatment of Constipation. J. Geoghegan.—p. 652.
Physical Treatment of Constipation. C. B. Heald.—p. 666.
Painful Constipation. H. E. Griffiths.—p. 673.
Modern Diagnosis of Carcinoma of the Breast. D. C. L. Fitzwilliams.—p. 676.
Deep Transverse Lie of the Head. W. Shaw.—p. 685.
Antenatal Care in the Interests of the Child. A. G. Watkins.—p. 695.
Cardiac Rheumatism and Bath Treatment. A. P. Bernáth.—p. 703.
Treatment of Disease of the Tibia. E. F. Neve.—p. 711.

Presse Médicale, Paris

42: 209-224 (Feb. 7) 1934

What Is Sclerocystic Ovaritis? G. Cotte and G. Pallot.—p. 209.
*Hypercalcemic Ankylosing Arthritis and Parathyroidectomy. M.-P. Weil.—p. 211.
*Sodium Thiosulphate for Unexpected Symptoms of Gold Therapy. J. Vignati, U. Hradistè and V. Skalak.—p. 212.

Hypercalcemic Arthritis and Parathyroidectomy.—Weil does not feel that either the character of an ankylosing arthritis or a hypercalcemia offer sufficient evidence on which to base parathyroidectomy. Therefore fourteen patients were chosen who were afflicted with generalized chronic arthritis and had resisted all other treatments. In all these patients, partial thyroidectomy was performed as well as parathyroidectomy when the parathyroids could be found. In three patients with rhizomelic spondylitis, amelioration occurred in two (in one of whom the parathyroids were found to be abnormal). In two patients with multiple arthritis and goiter, considerable improvement occurred in one in whom partial thyroidectomy was performed but the parathyroids were not found. The other showed improvement for about six months. Of the nine remaining patients with multiple arthritis who were operated on, one died and one did not have the operation completed. In four cases, no change occurred; in one there was considerable improvement and in one in which the parathyroids were not found there was also a marked amelioration of the condition. The author believes that, although improvement from the operation is possible, in some instances poor results occur and that the interpretation is disputable and the indications are lacking in precision.

Sodium Thiosulphate for Unexpected Symptoms of Gold Therapy.—Vignati and his associates describe their method of gold therapy, with which they have never had serious accidents. The agents employed in their gold preparation were gold chloride, anhydrous sodium sulphite, crystallized sodium thiosulphate and distilled water, each chemically pure. To obtain a solution containing 0.01 Gm. of gold per cubic centimeter of solution for injection, they prepared a solution of 2 Gm. of sodium sulphite, and 6.5 Gm. of sodium thiosulphate in 40 cc. of distilled water. To this they added, drop by drop and with shaking, a solution of 1 Gm. of gold chloride dissolved in 25 cc. of distilled water. Finally the solution was filtered, neutralized with sodium hydroxide and sterilized for one hour at from 90 to 100 C. A total of 217 patients with pulmonary tuberculosis and some additional patients with rheumatism, syphilis, asthma and atrophy of the optic nerve received treatment with this preparation. No serious reactions resulted, and in four cases was there a short, afebrile exanthematous reaction, after which treatment was resumed without incident. The authors believe that the apparent protective action of sodium thiosulphate against reactions to gold therapy needs to be verified on a large scale by other investigators.

42: 225-248 (Feb. 10) 1934

Etiology of Sylvian Vascular Spasms. H. Roger and P. Sarradon.—p. 225.
*Latent Icterus of Chronic Cholecystitis. E. Chabrol and A. Busson. —p. 228.
*Cobalt as Vasodilator. J.-M. le Goff.—p. 231.

Latent Icterus of Chronic Cholecystitis.—In studying forty-five cases, Chabrol and Busson found that pigment cholemia, through its constant presence, is more valuable than cholesterolemia in recognizing chronic cholecystitis without icterus. Chauffard once remarked that hypercholesterolemia is incompatible with diseases of the biliary tract. Consequently it is precisely the hepatobiliary disease that seems to condition the amount of bilirubin in the blood in chronic cholecystitis. Undoubtedly the familial tendency may be a factor. This explanation may be valuable for a certain number of diseases, but it is generally surprising to see the pigments return forty-eight hours after surgical intervention for removal of the inflammatory focus. The authors believe that before passing judgment on the precise mechanism which governs this latent pigment retention (hepatitis, angiocholitis, choledochus spasm or pancreatic involvement) it is important to know the rate of increase, in order that surgical indications may benefit. Outside of icterus, hypercholesterolemia is more a symptom of atherosclerosis or of chronic nephritis than a manifestation of biliary lithiasis. The authors state that the bilirubin content of the blood is not higher in cases in which the calculi are obvious to the roentgen rays. In a great number of cholemic states the hyperbilirubinemia disappears the day following surgical intervention. In twelve cases of gastroduodenal ulcer the bilirubin content of the blood was normal eleven times. The one exception (20 mg. per thousand cubic centimeters) concerns a case presenting subhepatic adhesions forming a perivisceral veil and marked periduodenitis. Familial cholemia may be present when there is a contrast between the high rate of the bilirubinemia and the absence of pain provoked by Murphy's sign. When a cholic inflammation is complicated by a vesicular reaction, variance is generally found between the weak bilirubinemia and the abnormal degree of subhepatic sensitiveness. The authors recognize that the pigment content of the blood easily tends to individualize the group of chronic colitis without hepatovesicular involvement; the rate of bilirubin is then normal. Forty-eight hours after operation there was scarcely any increase in the bilirubin in cases in which the liver was unaltered: this was observed in various operative conditions, such as appendicitis, hernia, hysterectomy and ovariectomy. The authors found that early attacks of bilirubinemia in patients operated on for cholecystectomy without drainage are not incompatible with a progressive amelioration of the condition of these patients. In the majority of cases of cholecystitis the pigment cholemia reaches its normal rate in two or three weeks, the maximum being three months after operation.

Cobalt as Vasodilator.—Le Goff experimented with cobalt compounds on rabbits and dogs. The cobalt was administered either by mouth or by subcutaneous injections in an isotonic solution. On the basis of experiments in animals, the author decided to test the action of cobalt compounds in human beings. In three cases the cobalt was administered by mouth and in seventy-two by intramuscular injections of an isotonic solution of cobalt chloride, citrate and salicylate. In conclusion the author states that a few centigrams of cobalt compounds, from 0.01 to 0.05 Gm., are not toxic for man. Their main effect is the vasodilatation of the blood vessels of the face and ears with a fall in blood pressure. This redness of the face seems to be produced by a paralyzing effect of cobalt acting on the sympathetic system.

Minerva Medica, Turin

1: 145-176 (Feb. 3) 1934

Considerations on Circulation of Bile in Intrahepatic and Extrahepatic Biliary Tract. O. Uffreduzzi.—p. 145.
*Serum Coagulation of Weltmann in Hepatopathy in Relation to Protein Picture of Serum. E. Massobrio and U. de Michelis.—p. 147.
*Behavior and Significance of Weltmann's Serum Reaction in Some Diseases: Research on Behavior of Electrolytic Threshold of Coagulo-flocculation to Heat of Exudates, Transudates and of Normal and Pathologic Cerebrospinal Fluid. M. Pellegrini and G. Barsini.—p. 154.
Chloropenic Hyperazotemia. A. Creazzo.—p. 162.

Weltmann's Serum Reaction in Hepatopathy.—Massobrio and de Michelis experimented with Weltmann's serum reaction on hepatic diseases, diseases of the biliary tract and hemolytic icterus. To an equal amount of serum (0.1 cc.) they add 5 cc. of a solution of calcium chloride in distilled water diluted in arithmetical progression from 0.1 per hundred to 0.1 per thousand and boil the whole batch on a water bath for fifteen minutes, during which time the tubes must be shaken continually. The authors found that Weltmann's serum coagulation reaction cannot give early indication of a hypofunction of the liver but is valuable for differential diagnosis of hepatic diseases. In advanced cirrhosis the reaction showed a marked and constant increase of the coagulation column. Inflammatory processes of the biliary tract and tumors of the liver and of the biliary system showed either shortening of the coagulation column or normal values. In viewing the results of the reaction, the authors take into consideration the possibility of a concomitance of processes influencing the coagulability of the serum in an opposite or in the same way. In regard to the relation of the column of coagulation to the alterations of the hematic protein picture in hepatic diseases, they state that there exists a certain parallelism between increase of the column

of coagulation and inversion of the protein quotient, particularly in forms with pronounced cellular involvement. The fact that diseases with marked inversion of the protein quotient sometimes present a shortening of the column of coagulation indicates that the two conditions are strictly dependent on each other.

Weltmann's Serum Reaction in Some Diseases.—Pellegrini and Barsini studied the effect of the Weltmann reaction on the serum of 300 patients presenting various diseases, 28 with exudates and 16 with transudates, 12 with normal and 4 with pathologic cerebrospinal fluids. The authors found that the modifications undergone by serum coagulation constantly reflect the nature of the lesion developing in the organism and vary according to whether the pathologic process is exudative or sclerotic. In inflammatory diseases of the biliary tract there is an alteration of the coagulation toward the higher electrolytic concentrations, while the opposite behavior is evinced by the cirrhotic lesions of the liver. Since cirrhosis also embraces catarrhal icterus, it corroborates the prevalently hepatic nature of this disease. In other diseases in which the hepatic function may be involved, as in pernicious anemia, diabetes mellitus and chronic alcoholism, the effect of the reaction is analogous to that observed in cirrhosis. This behavior was observed without exception in twenty-one cases of postencephalitic parkinsonism. The authors maintain that the reaction of Weltmann is one of the more sensitive indexes of altered hepatic function.

Deutsche medizinische Wochenschrift, Leipzig

60: 197-232 (Feb. 9) 1934

Quantitative, Qualitative and Time Factors in Tuberculous Infection and Its Significance for Pathogenesis of Disease. B. Lange.—p. 197.
°Aspects of Atypical Pneumonias During Childhood. J. Wätjen.—p. 201.
Acute Enterococcus Pneumonia with Aspects of Typhoid. H. Gerhartz. —p. 206.
°Calcium Therapy of Influenzal Bronchitides and of Genuine Pneumonia. E. Zapel.—p. 207.
Extreme Pulmonary Collapse Therapy: Case. H. Jessen.—p. 209.
Treatment of Pollen Allergy. K. Hansen.—p. 210.
Most Important Infectious Diseases. C. Hegler.—p. 213.
Nutrition of Healthy and Sick Charity Recipients. H. Bartelmai.—p. 218.

Atypical Pneumonias During Childhood.—Wätjen reports the histories of four cases of atypical pneumonia in children, which ended fatally. The postmortem examinations revealed that the atypical pneumonic changes were characterized by more or less extensive hemorrhagic infiltration of the pulmonary tissues, involvement of the interstitial tissues of the lung, and, with the exception of the first case, by pulmonary abscesses. The discovery of the pulmonary abscesses during the necropsy was a surprise in that their existence had not been indicated by the clinical aspects. The anatomic and bacteriologic aspects of the reported cases resembled those of influenzal pneumonia. All four cases developed outside of an influenza epidemic, and it could not be decided whether they were precursors or the late stragglers of an influenza epidemic. The detection of influenza bacilli in three of the patients is noteworthy, because it again raises the question of the causal rôle of Pfeiffer's bacillus in influenza and in influenzal pneumonia. The author thinks it possible that the Pfeiffer bacillus plays a part in influenzal pneumonia and calls attention to the possibility of an infection by carriers of the bacillus outside of an influenza epidemic. He thinks that these atypical cases of pneumonia, which resembled influenzal pneumonia, were the result of the same factors that in the course of an influenza epidemic occur with greater frequency. He assumes that the peculiarities of the pathogenic organism and a reduced resistance in the patient are the dominating factors in these atypical pneumonias.

Calcium Therapy of Pneumonia.—In enumerating the beneficial effects of calcium therapy, Zapel mentions the stimulating influence on the sympathetic nervous system, the anti-inflammatory action, the favorable effect on the blood coagulation, the reduction of the irritability of the cerebral cortex, the significance of the calcium ions for the osmotic pressure, the digitalis-like action on the heart, and the favorable effect on the incretory system. Since a 20 per cent solution of calcium gluconate gave promise that it would combine the favorable effects of hypertonic solutions on the circulation with the effects of calcium preparations, the author decided to employ a 20 per cent solution of calcium gluconate in influenzal and pneumonic pulmonary complications. The dosages varied according to the severity of the disorder. From 10 to 50 cc. was divided in several daily doses. Some of the injections were given intravenously and some intramuscularly. As a rule the treatment was continued until the fever had completely disappeared. The author admits that it is difficult to estimate the results of the treatment in an objective manner, but, on the basis of observations in 200 cases of influenza, influenzal bronchitis and pneumonia he stresses that the preparation is well tolerated in both the intravenous and the intramuscular injections. It exerts a digitalis-like action on the heart and on the peripheral circulation. In influenzal bronchitis and in pleurisy an antiexudative and an anti-inflammatory effect can be observed. The superiority of the 20 per cent solution over the formerly employed 10 per cent solution lies in the fact that it acts more rapidly and that larger amounts of calcium can be administered with the same quantity of fluid. About the effects on the calcium content of the blood, the author states that his observation corroborated those reported in the literature.

Klinische Wochenschrift, Berlin

13: 201-240 (Feb. 10) 1934

Pathogenesis of Rickets. R. Degkwitz.—p. 201.
Preparation of Direct Virulent Pure Culture of Spirochaeta Pallida from Rabbit Syphiloma in Fluid Culture Medium. E. Hoffmann and W. Frohn.—p. 206.
Significance of Thyroid for Respiration of Tissue Sections of Warm Blooded Animals. H. Paal.—p. 207.
Corticotropic (Suprarenal) Hormone of Anterior Lobe of Hypophysis. K. J. Anselmino, F. Hoffmann and L. Herold.—p. 209.
Epidemiology and Clinical Aspects of Malignant Diphtheria. E. Lorenz. —p. 212.
°Significance of Muscular Tonus for Blood Circulation. D. Mateeff and C. Petroff.—p. 217.
Progressive Muscular Dystrophy, Its Hereditary Transmission and Glycine Treatment. S. Kostakow.—p. 219.
°Mechanism of Takata-Ara Test. L. Schindel.—p. 221.
Specific Sensibilization of Serologic Reactions. H. T. Schreus and R. Foerster.—p. 224.
Arterial Blood Pressure and Arteriovenous Oxygen Difference. C. Mattonet.—p. 224.
Recognition of Stenosis of Aortic Isthmus During Life. B. P. Kuschelewski, M. I. Glikin and D. M. Syssin.—p. 225.
Vitamins. W. V. Drigalski.—p. 226.

Significance of Muscular Tonus for Blood Circulation.—Mateeff and Petroff point out that gravitational disturbances in the circulation are due to the fact that, under the influence of the hemostatic pressure, the capillaries and the small and large veins of the lower portion of the vascular system become dilated and take up a larger amount of blood than is the case when the patient is reclining. The hemostatic pressure exerted on the inside of the vascular walls is counteracted by their elasticity and by the counterpressure of the surrounding tissues. The elastic resistance of the vascular walls is not constant but variable, depending on the tonus and the influence of the innervation. The authors think that the circulatory significance of this vascular tonus should not be overestimated and that the hemostatic pressure is counteracted mainly by the pressure from the surrounding tissues, especially from the muscular tonus. If the latter factor really has this predominating significance for the circulation, it is to be expected that persons with a pathologically decreased muscular tonus are subject to circulatory disturbances when they are standing up. The authors investigated this problem on persons with reduced, increased and normal muscular tonus by determining the pulse rate and blood pressure when the persons were reclining and standing. They found that in patients with pathologically decreased muscular tonus the hemostatic pressure during erect posture produces a disturbance in the blood distribution which is so severe that in a comparatively short time (from five to twenty-five minutes) the circulation fails completely and the so-called gravitation shock develops. Bandaging of the lower extremities up to the pelvis by means of an elastic bandage counteracts the gravitational disturbances in the blood distribution of these patients. In patients with pathologically increased muscular tonus and in healthy persons with good muscular tonus, the gravitational disturbances in the blood distribution are extremely slight. The normal muscular tonus prevents the abnormal dilatation of the capillaries and of the small and large veins of the lower parts of the body and facilitates the backflow of the blood to the right side of the heart.

Mechanism of Takata-Ara Test.—Schindel states that the Takata-Ara reaction, which was first suggested for the differen-

tiation of the changes in the cerebrospinal fluid in neurosyphilis from those in bacterial meningitides, was later employed on the serums of patients with hepatic diseases. Jezler's results seemed to indicate a globulin increase in liver disease, but Skouge, who also investigated this problem, proved that a considerable increase in globulin does not necessarily lead to a positive outcome of the Takata-Ara test. The contradictory results of Jezler and Skouge induced the author to study the mechanism of the Takata-Ara reaction. He found that by the addition of the lower fatty acids, such as formic, acetic, propionic and butyric acids, to the dilution series of a serum it is possible to obtain a positive reaction in a serum that otherwise gave a negative Takata-Ara reaction. The addition of mineral acids, however, did not have this effect. The flocculation following the addition of the low fatty acid takes place exactly as in the naturally positive Takata-Ara serum, in the dilution of 1:32. By adding one of the lower fatty acids to the serum as such, it was possible to produce a type of fluocculation which resembles that in ascites. Transformation of the experimentally as well as the naturally positive Takata-Ara reactions into negative ones could be effected by the addition of a solution of sodium or potassium hydroxide. These observations indicate that it must be questioned whether a positive Takata-Ara reaction is the result of changes in the composition of the serum proteins, for it is not likely that in the case of the addition of the fatty acids the process is simply a protein precipitation. Further experiments are being conducted to determine to what extent the fatty acids that develop in the intermediate metabolism play a part in the outcome of the reaction.

Medizinische Klinik, Berlin

30: 185-216 (Feb. 9) 1934

Hereditary Character of Diabetes Mellitus. L. R. Grote.—p. 185.
*Chronic Intestinal Disturbances with Decalcification of Bones in Adult: Relations to Celiac Disease of Children. H. Wendt.—p. 187.
Prognosis and Treatment of Pemphigus Vulgaris. L. Hauck and H. Höcker.—p. 192.
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Clinical Evaluation of Diiodotyrosine. F. W. Lapp.—p. 195.
Simple Method for Percutaneous Application of Histamine. B. von Issekutz.—p. 197.
Treatment of Chronic Relapsing Paronychias and of Related Ungual Diseases by Means of Excision and Thiersch Transplantation. F. Rudofsky.—p. 198.
Roentgen-Radium Irradiation of Inoperable Ovarian Carcinoma. F. Heimann.—p. 198.
Modification of Galactose Test by Salyrgan. K. Machold.—p. 199.
Method to Determine Thyroid and Liver Action by Continuous Examination of Complement Content of Serum. W. Loew.—p. 200.
Flocculation Reaction. O. Umnus.—p. 203.
Histologic Investigations on Changes in Bile Passages in Artificially Increased Choleresis by Means of Dehydrocholic Acid. M. Clara. —p. 203.
Case Containing Syringe and Fluid for Treatment of Gonorrhea in Men. F. Fleischmann.—p. 205.

Chronic Intestinal Disturbances.—Wendt relates the history of a woman, aged 39, presenting symptoms similar to those observed in celiac disease of children. Severe enteritic disturbances existed, particularly in the small intestine. Roentgenoscopy without a contrast medium indicated the presence of large amounts of fluid in the small and large intestine, for there were numerous shadows with level surfaces. Clinical examination revealed a fluctuating abdomen, and splashing sounds could be elicited. Following ingestion of the barium meal, there was a comparatively normal evacuation of the stomach, but the filling of the small intestine was irregular. In some portions of the small intestine the passage seemed to be accelerated and in others retarded. Examination of the duodenum revealed Bacillus coli. In spite of the fact that the pancreatic and biliary secretions were normal, there existed severe disturbances in the resorption of fats, proteins and carbohydrates. The patient had tetanic attacks and examination revealed hypocalcemia, hypophosphatemia, extensive osteoporotic processes and spontaneous fractures. Acidosis existed and a disturbance in the carbohydrate metabolism was indicated by the low blood sugar curve following a dextrose tolerance test. The examination of the blood picture revealed hypochromic anemia and leukopenia. The author concludes that this is a true case of celiac disease.

Percutaneous Application of Histamine.—It is pointed out by von Issekutz that in the use of skin irritants it is always histamine or a substance that acts similarly that produces the hyperemia. This knowledge led to the direct application of histamine. Application by iontophoresis, in which a histamine-containing filter paper is covered on one side with aluminum and serves as an anode, is perhaps the best method. The filter paper is moistened and applied to the skin and, shortly after a current of from 3 to 15 milliamperes has been passed through the anode, the histamine action is evident. However, since this method requires a special apparatus and a certain experience, it is not always practical, and the author devised a method that can be applied without an apparatus. He shows that the penetration of histamine is prevented mainly by the fat-covered horny layer of the skin. Because of this layer the histamine ointment can enter the skin only through the hair follicles, and, in order to facilitate the penetration, the horny layer has to be loosened. The author effected this by passing a fine glass paper over the skin. The pressure should be slight, because pain, detachment of the deeper layers of the epithelium, exposure of the corium and appearance of petechial hemorrhages must be avoided. The rubbing is continued for from twenty to thirty seconds, so that the upper epithelial layer is loosened and the exfoliated particles cover the skin like a fine meal. This loosening of the epithelium and the intracellular microscopic fissures are sufficient to facilitate resorption of the histamine. A further improvement can be effected by using a water-soluble gelatinous base rather than a fatty base. The author found also that if his method of preparing the skin is employed the histamine preparation does not need to be so concentrated. He found a 0.5 per cent gelatinous histamine preparation more effective than a 2 per cent fatty histamine ointment.

Wiener klinische Wochenschrift, Vienna

47: 161-192 (Feb. 9) 1934

Clinical Aspects of Exophthalmic Goiter. E. Risak.—p. 161.
Problem of Checking Further Spreading of Typhoid and Paratyphoid by Bacillus Carriers. V. Gegenbauer.—p. 163.
*Significance of Glycosuria and Hyperglycemia in Diseases of Coronary Arteries. A. Edelmann.—p. 165.
*Applicability of New Method for Determination of Histidine in Examination of Urine of Pregnant Women. Regine Kapeller-Adler.—p. 168.
New Results of Research on Rheumatism. E. Maliwa.—p. 171.
Late Results of Epidemic Acute Serous Meningitis. H. Schneider. —p. 173.
Mineral-Free Water Therapy in Increased Blood Pressure. H. Koelbl. —p. 174.
Medicinal Treatment in Otiatry. C. Stein.—p. 176.
Clinical Aspects of Labyrinthitis. E. Ruttin.—p. 179.
Pneumothorax in Family Practice. O. Satke.—p. 180.

Glycosuria and Hyperglycemia in Diseases of Coronary Arteries.—Among 118 patients with coronary sclerosis or with coronary thrombosis, in whom Edelmann studied the carbohydrate metabolism, there were 62 with temporary or continuous glycosuria or hyperglycemia. The majority of these patients had a latent diabetes mellitus. It was found also that coronary sclerosis frequently concurs with arteriosclerotic occlusion of the dorsal artery of the foot, and in both conditions there frequently exists a diabetic disturbance of the metabolism. The author concludes that latent diabetes is one of the most important etiologic factors in the development of arteriosclerosis. He demands dietary measures in coronary sclerosis and in sclerosis of the arteries of the foot, and he thinks that eventually dietary restrictions could be instituted for prophylactic purposes. He calls attention to the possibility of treating coronary sclerosis and sclerosis of the arteries of the foot by radium irradiation of the region of the heart and by the simultaneous administration of insulin.

Histidine in Urine of Pregnant Women.—Kapeller-Adler, who investigated the occurrence of histidine in the urine of pregnant women, succeeded in finding a specific method for the detection of histidine. A reexamination of Voge's test convinced her that it is not reliable. In her method of determining the histidine in the urine, the phosphates are eliminated first, then the histidine is concentrated and, after suitable treatment, colorimetric examination is done. The following reagents are required for the colorimetric test: (1) a 1 per cent solution of bromine in 33 per cent solution of acetic acid; (2) two parts of ammonia mixed with one part of a 10 per cent solution of ammonium carbonate; (3) a 1:1,000 standard histidine solution; (4) a tenth normal solution of potassium permanganate. After giving a detailed description of the procedure, the author

presents tabular reports of the outcome of the tests. The urines from pregnant women always gave a positive reaction, but the quantities of histidine fluctuated and there was no relation between the quantity of histidine and the stage of advancement of the pregnancy. In the urines of sixty-two pregnant women, the values fluctuated between 6 and 74 mg. per hundred cubic centimeters. It was not possible to determine at what period of pregnancy the histidine elimination begins, but positive reactions were obtained during the sixth week, and in some instances only traces of histidine were demonstrable during the fifth and sixth week, while a week later histidine was detectable in noticeable quantities. Tests on seventeen healthy nonpregnant women resulted in negative reactions in all but one of the cases, and of the urines of ten nonpregnant women with various disorders two gave positive results: one was from a woman with bronchial carcinoma and the other from a woman with exophthalmic goiter. The urines of six women with amenorrhea and of one with myoma were entirely free from histidine. Examination of the urines of puerperal women indicated a slow decrease in the histidine values. In ten out of eleven urine specimens the histidine and the Aschheim-Zondek tests gave identical results, but in one case of negative Aschheim-Zondek reaction a large amount of histidine was discovered. Somewhat surprising was the observation that the urines from healthy men gave positive histidine reactions much more frequently than did those from healthy women. The author is now conducting experiments to determine whether the histidine elimination can be modified by hormones. She also describes a rapid control reaction for the demonstration of histidine in the urine.

Klinicheskaya Meditsina, Moscow

11: 1181-1190 (Nos. 23-24) 1933. Partial Index

Concentrative Method in Clinical Psychiatry. S. S. Sergievskiy. —p. 1181.
Problem of Sex and of Endocrinology. F. A. Bekanov.—p. 1189.
"Gravidan" and Its Biologic Properties. G. P. Artynov.—p. 1207.
Parathyrogenous Bony Dystrophies and Calcinosis. P. A. Khurgina. —p. 1238.
*Functional Disturbance of Thyroid in Industrial Chronic Mercurial Poisoning. M. A. Kazakevich.—p. 1247.

Functional Disturbance of Thyroid in Mercurial Poisoning.—Kazakevich investigated 133 workers in a mercury plant. Of these, 48 were men and 85 women; 60.9 per cent of the group were between 20 and 30 years of age. The duration of occupation was from six months to three years. Manifestations of a thyrogenous character with an enlargement of the thyroid were observed in 57.3 per cent. The incidence of vasomotor neurotic states of thyrogenous character raises the percentage to 88.9. The following constituted characteristic complaints: irritability, somnolence, poor memory, disturbed sleep, headache, tremor of the extremities, particularly of the fingers, flushes, sweating, palpitations, falling out of hair, increased salivation, bleeding gums, weakness and apathy. Among the characteristic objective signs were tremor of the eyelids, dilated pupils, exophthalmos, absent or weakened pharyngeal and conjunctival reflexes, tremor of the fingers, red dermographism, increased sweating and salivation, enlarged and tender thyroid, and falling out of hair. Double color line of the gums, pale skin and mucous membranes, arterial hypotonus and labile pulse were rather frequent signs in chronic mercurial poisoning. Enlargement of the cervical and inguinal lymph nodes was present in almost all cases. In the beginning the nervous system reacts to mercurial intoxication with a vasomotor neurosis, which gradually develops into hyperthyroidism if the intoxication continues. The highest values of mercury excreted in the urine were found in adolescents up to the age of 20, and disturbances of the thyroid function and of the vegetative nervous system occurred in them with greatest frequency. The incidence of hyperthyroidism was higher in women than in men. The author urges a number of preventive measures for the removal of mercurial vapors, exclusion of workers below the age of 20, and the consideration of limiting in some cases the period of employment to six months at one time. Administration of salts of iodine and of bromine because of the readiness with which these halogens combine with mercury is recommended just as soon as the first signs of mercurial irritation appear.

Acta Chirurgica Scandinavica, Stockholm

74: 1-262 (Feb. 3) 1934

*Severe Cerebral Symptoms Arising in Course of Operations on Pleura and Lungs. G. Petrén.—p. 1.
Sedimentation Reaction in Acute Cholecystitis and in Uncomplicated Cholelithiasis. N. Liedberg.—p. 19.
Diastasuric Conditions in Cases of Jaundice Due to Malignant Tumors. E. Millbourn.—p. 47.
Contribution to Question of Essential Thrombopenia and of Its Treatment. A. Ryden.—p. 88.
*Diagnosis and Disinvagination of Intestine with Aid of Fluoroscopy. P. M. Sjöström.—p. 125.
Appendicitis with Obscure Roentgen Observations: Case. N. Liedberg. —p. 172.
Clinical Study of Malignant Tumors of Ureter: Operative Case of Ureteral Sarcoma. S. Bergendal.—p. 179.
Skin Temperature of Plantar Surface (Ipsen) in Study of Deep Thromboses. N. Liedberg.—p. 229.
Contribution to Question of Peripheral Emboli. S. Bergendal.—p. 248.

Cerebral Symptoms in Course of Operations on Pleura.—Petrén reports three cases of severe cerebral complications occurring during a surgical intervention on the pleura or the lung. In one case a thoracotomy was performed for the cure of pleural empyema, in the second case the cerebral symptoms developed after two punctures of the exposed lung, and in the third they appeared in the course of a plastic procedure on the thoracic wall for the closure of a persisting empyema cavity. Sudden loss of consciousness was the mode of onset in all three cases, the rest of the symptoms exhibiting considerable variation. In the first case there developed a hemiplegia, facial paresis, almost complete aphasia and later clonic convulsions and death twenty hours after the onset. In the second case there developed hemiplegia, facial paresis, aphasia and amaurosis, while amaurosis was the only focal symptom in the third. Necropsy in the first case revealed nothing abnormal in the brain tissue. Hemiplegia, aphasia and the visual disturbance in the second case disappeared in a few hours, while in the third case the amaurosis disappeared in the course of three days. The earlier views considered this phenomenon in the nature of a nervous reflex; hence such terms as pleural reflex, pleural shock, pleural epilepsy and pleural eclampsia. Wever injected air into the carotid artery and produced the same cerebral symptoms as in the cases under consideration. Ophthalmoscopic examination of these animals revealed air embolism of the retinal vessels. Postmortem observations were as a rule negative. Wever found air in cerebral arteries in two cases of sudden death. The author concludes that the theory of pleural reflex has been replaced by the concept of air embolism of the cerebral vessels, the retinal vessels and later the coronary vessels, as the cause of the cerebral complications in operations on pleura and lung.

Disinvagination of Intestine with Aid of Fluoroscopy.—Sjöström states that for the last three years all cases of intussusception admitted to the Lund Hospital were referred to the roentgen department. In addition to the establishment of the diagnosis an attempt was made in almost all cases to disinvaginate the intussuscepted intestine under fluoroscopic control with the aid of a barium enema under pressure employing massage and taxis. The successful cases were kept under observation; the failures were submitted immediately to a laparotomy. Disinvagination was successfully carried out by this method in twenty-two of thirty-eight cases, the children being discharged as cured. In the remaining sixteen, operation was performed immediately after the attempt at reduction under roentgen control had failed. In all of these, reduction was accomplished at the operation. It is the ileocecal intussusception that can be reduced by a barium enema and taxis under fluoroscopic control. In nineteen cases of this type, failure was encountered only once. The nonileocecal intussusceptions can frequently be diagnosed roentgenologically, and operation should be performed at once. Cases in which the history is shorter than twenty-four hours are most favorable. Taxis should not be attempted in cases in which there is a history of more than two days. The author does not recommend nonoperative disinvagination as an independent method. In his experience it proved valuable as a preoperative means of eliminating about two thirds of all the cases in which a cure may be brought about by conservative means, while in the remaining one third the operation may be carried out without an increase in mortality.